

# **The Official Soviet AKM Manual**

**Operating Instructions for the  
7.62mm Modernized Kalashnikov  
Rifle (AKM and AKMS)**



*Originally Issued by the Ministry of Defense of the U.S.S.R.*

**With Original Illustrations and Translation by  
Maj. James F. Gebhardt, U.S. Army (Retired)**





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Official Soviet SKS Manual  
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*The Official Soviet AKM Manual:  
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Modernized Kalashnikov Rifle (AKM and AKMS)*  
by Maj. James. F. Gebhardt (Ret.)

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# About the weapon

**M**ikhail Timofeëvich Kalashnikov was born in 1919 to a peasant family in the village of Kurya, Altay region (southwest Siberia). He entered a primary school in 1926, but was forced to leave his village when pursued by authorities for possessing a revolver he had picked up from a civil war battlefield. Young Mikhail went to Alma-Ata, where he later found employment as a technical secretary in one of the departments of the Turkestan-Siberian Railroad.

Kalashnikov was drafted into the Red Army in 1938, and then sent to a school for tank driver-mechanics. Here he distinguished himself in the design of an instrument for monitoring tank engine hours, and in 1939 went to Leningrad to participate in the production of the device. When the Great Patriotic War began in June 1941, Senior Sergeant Kalashnikov found himself commanding a tank at the front.

Seriously wounded in combat around Bryansk in October 1941, Kalashnikov was evacuated to the deep rear for recovery. While on a six-month convalescent leave, he returned to Alma-Ata, where he found a position in a weapon production facility run by the Moscow Aviation Institute. Here he began a career in small arms design and production that would last more than a half century.

The first weapon that bore the name Kalashnikov was a 7.62mm submachine gun, which when tested in 1942 showed no advantages over the just-adopted Sudayev design (PPS-43). Kalashnikov's effort, however, did earn him accolades from leading designers and continued employment in his new-found field. Young Kalashnikov also designed an entry for the 1944 carbine competition that was won by the Simonov self-loading carbine (SKS-45), and a 9mm submachine gun in 1947.

In 1946, while working at the Kovrov Weapons Plant (about 250 kilometers east of Moscow), Kalashnikov began work on the weapon that would carry his name around the world—the AK-47. This 7.62 x 39mm assault rifle was accepted as the standard rifle for the Soviet Army in 1949, and retained that status until it was succeeded by the modernized Kalashnikov assault rifle (AKM) in 1959. Kalashnikov and his design team would eventually design and produce an entire family of automatic weapons based on the AK-47 assault rifle design: the AKM and AKMS assault rifle, the RPK and RPKS machine gun, the PK and PKS machine gun, the PKT tank machine gun, and the PKB machine gun for the armored transporter.

The subject of this manual is the AKM assault rifle (*avtomat Kalashnikova, modernizirovanny*) and its folding-stock twin, the AKMS (*avtomat Kalashnikova, modernizirovanny, s sklady-vayushchimsya prikladom*). The AKM bears a strong mechanical and cosmetic resemblance to its forebear, the AK-47. Design differences include a retarder in the trigger mechanism that moderates the weapon's rate of fire; improvements to the bolt-locking system that contribute to better horizontal stability and thus accuracy; a 1000-meter rear sight leaf instead of the 800-meter leaf on the AK-47; stamped receiver, receiver cover, and other parts; plastic magazines and pistol grip; muzzle compensator; and a bayonet-knife in place of a plain bayonet. Cosmetic differences include a slightly larger fore end, laminated wood stock and fore end, and parkerized bolt and bolt carrier on the AKM. A loaded AKM is approximately 1.5 lb. lighter than a loaded AK-47.



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Variants on the AKM design have been produced in East Germany, Poland, Hungary, Romania, and North Korea. Total world-wide production of the AK-47 and AKM and their foreign variants is estimated at between 30 and 50 million, making the Kalashnikov assault rifle the most widely produced rifle in the world.

Kalashnikov has received numerous prestigious awards for his life-long labor in the design bureaus and factories of the Soviet defense establishment: Hero of Socialist Labor (two awards), the Lenin and State prizes, three Orders of Lenin, the Order of the October Revolution, Order of Labor Red Banner, Order of Friendship of Peoples, Order of the Red Star, and other lesser medals. He has an earned doctorate in technical sciences, and on the occasion of his 75th birthday in 1994 was promoted to major general (reserve).



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# About the translator

**James F. Gebhardt** is a retired US Army officer who served as an enlisted infantryman, armor officer, and Soviet foreign area officer during a 20-year military career. Gebhardt studied the Russian language at the University of Idaho, the University of Washington, Defense Language Institute (Monterey), and the US Army Russian Institute in Garmisch, Germany. He has performed military duty in the Soviet Union, and escorted Soviet scientific, diplomatic, and military personnel on military installations in the United States.

Mr. Gebhardt is the author or translator of several previous works, notable among them *Leavenworth Papers No. 17, The Petsamo-Kirkenes Operation* (Washington, DC: GPO, 1990) a study of the Soviet offensive in the arctic in October 1944; *Blood on the Shores* (Annapolis, MD: Naval Institute Press, 1993), the memoir of Twice Hero of the Soviet Union Viktor Leonov, famed reconnaissance commander from the Northern and Pacific Fleets; *Commandos From the Sea* (Annapolis, MD: Naval Institute Press, 1996), by Yuriy Strekhnin, an account of the World War II exploits of the reconnaissance detachment of the Black Sea Fleet and Danube River Flotilla; and *Commanding the Red Army's Sherman Tanks* (Lincoln, NE: University of Nebraska Press, 1996), by Hero of the Soviet Union Dmitriy Loza, who commanded a battalion of Red Army Sherman tanks in combat against German and Japanese forces in World War II. A second Loza memoir has been accepted for publication. In addition, nine other titles in this series of Soviet weapon manual translations are listed in the back of this book.

Mr. Gebhardt currently resides in Leavenworth, Kansas, and works as a computer simulation training specialist for a defense contractor supporting the U.S. Army at Fort Leavenworth.







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## PART ONE

# CONSTRUCTION OF THE RIFLE, HANDLING, MAINTENANCE, AND PRESERVATION

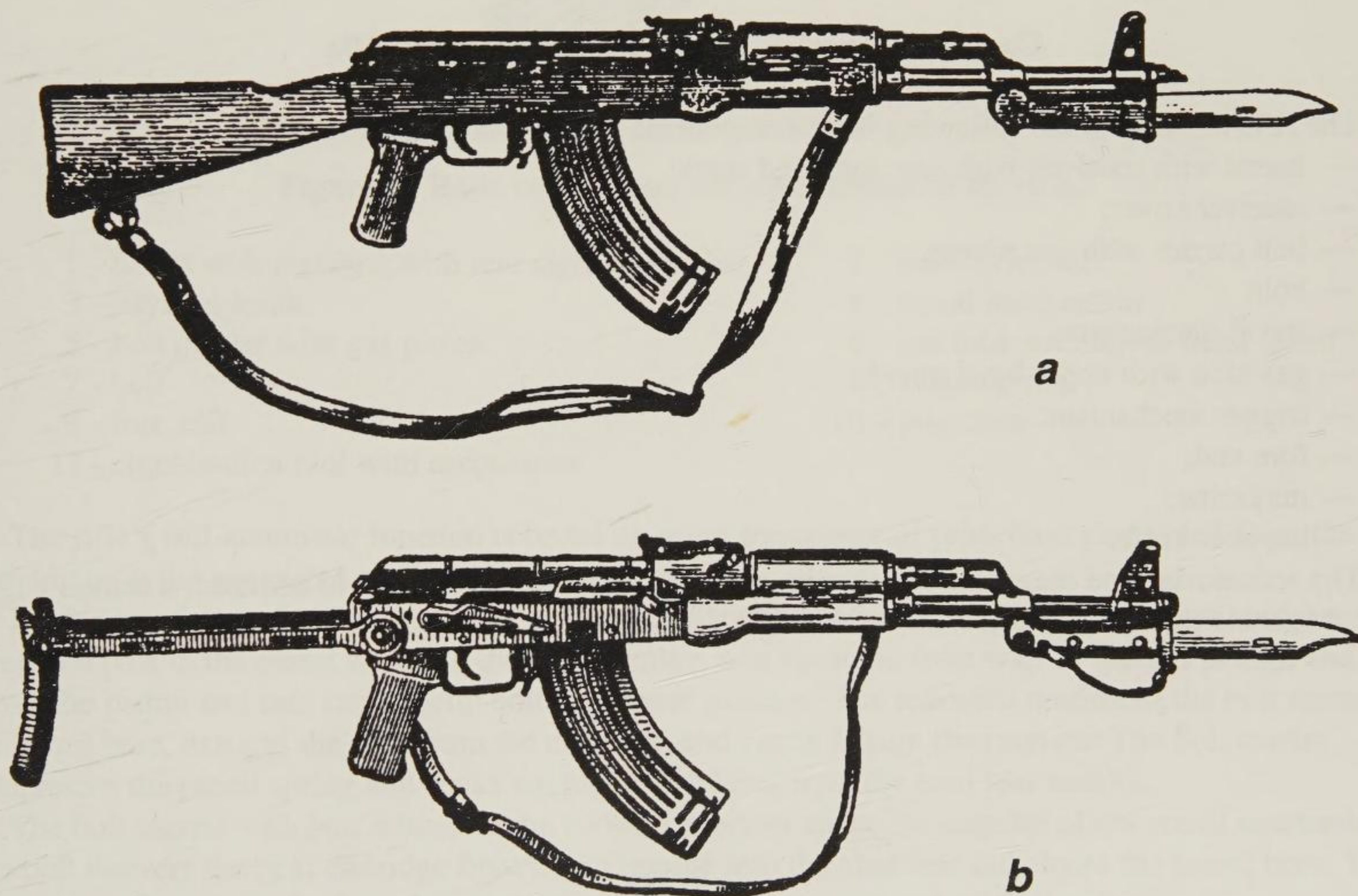
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### Chapter I

## GENERAL INFORMATION

### Purpose and combat characteristics of the rifle

1. The 7.62mm modernized Kalashnikov rifle (Figure 1) is an individual weapon intended for destruction of enemy personnel. A bayonet-knife can be attached to the rifle for defeating the enemy in hand-to-hand combat.



**Figure 1.** General view of the Kalashnikov rifle:

a - with wooden stock (AKM)

b - with folding stock (AKMS)



2. The type-1943 cartridge with conventional (steel core), tracer, and armor-piercing incendiary bullets is fired from this rifle.

The rifle is capable of semi- or full-automatic firing. Automatic fire is the primary method of firing with this rifle. It is conducted in short (up to 5 rounds) and long (up to 10 rounds) bursts and with continuous fire. Cartridges are delivered for firing from a box magazine with a capacity of 30 rounds.

The rifle is most effective at ranges up to 400 meters. The maximum sighted range of the rifle is 1000 meters. The battle-sight range is 350 meters at a head-and-shoulders target, and 525 meters at a running figure. Concentrated fire from the rifle at ground targets is conducted at ranges up to 800 meters, and at aircraft and parachutists at ranges up to 500 meters.

The rate of fire is approximately 600 rounds per minute.

The combat rate of fire is up to 100 rounds per minute when firing in bursts, and up to 40 rounds per minute when firing in single shots.

The weight of the rifle with loaded light-alloy magazine and without the bayonet-knife : AKM—3.6 kilograms [7.9 pounds]; AKMS—3.8 kilograms [8.4 pounds].

The weight of the bayonet-knife with scabbard is 450 grams [1 pound].

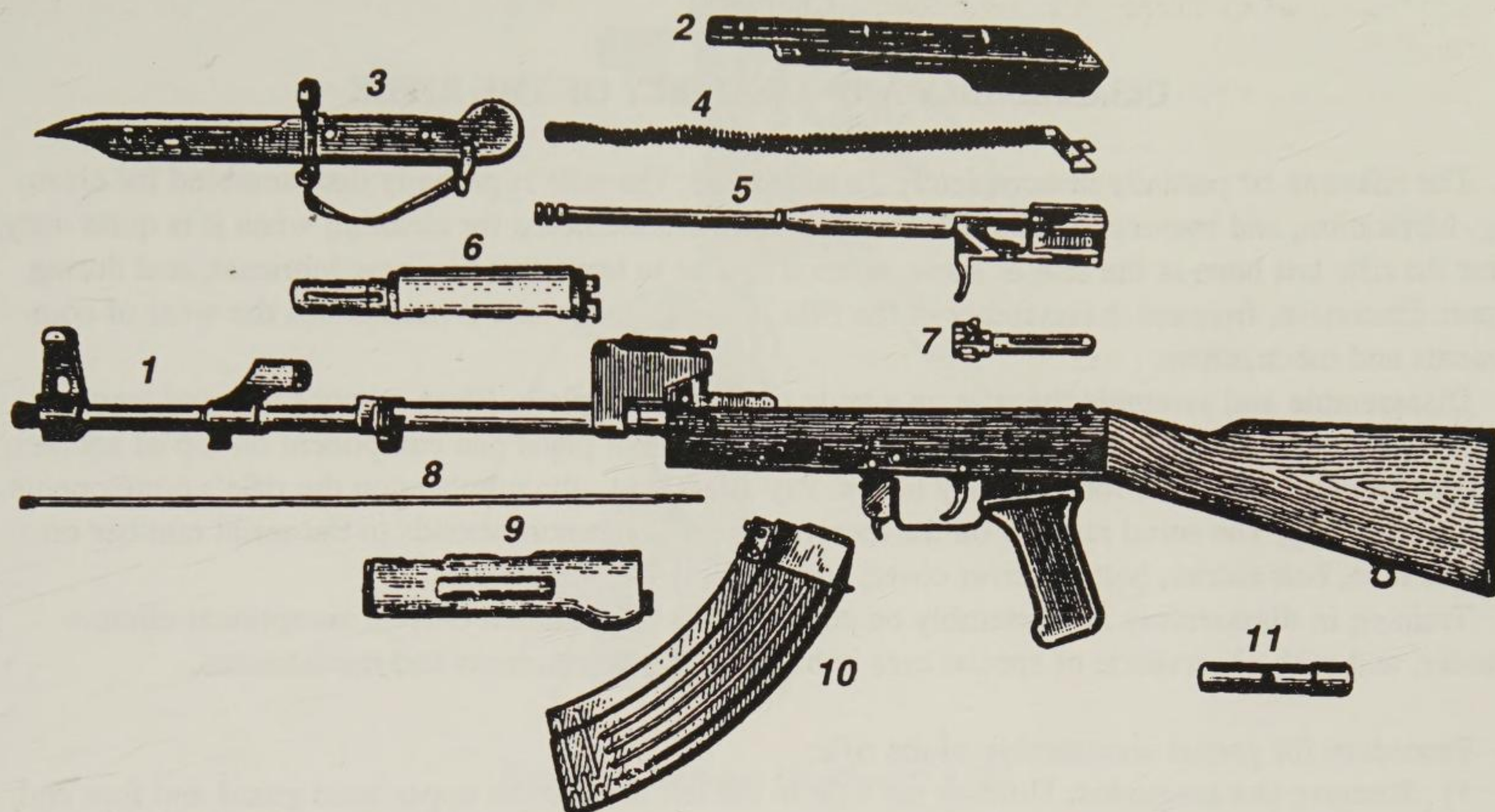
### **Concept of construction and function of the rifle**

3. The rifle consists of the following basic components and mechanisms (Figure 2):

- barrel with receiver, with rear sight and stock;
- receiver cover;
- bolt carrier with gas piston;
- bolt;
- recoil mechanism;
- gas tube with upper hand guard;
- trigger mechanism;
- fore end;
- magazine;
- bayonet-knife.

The accessories and magazine pouch with strap are issued with the rifle. In addition, a canvas bag with magazine pocket is issued with the AKMS rifle.





**Figure 2.** Basic components and mechanisms of the rifle:

- |   |                                    |
|---|------------------------------------|
| 1 - barrel with receiver, with rear sight and stock | 2 - receiver cover                 |
| 3 - bayonet-knife                                   | 4 - recoil mechanism               |
| 5 - bolt carrier with gas piston                    | 6 - gas tube with upper hand guard |
| 7 - bolt  | 8 - cleaning rod                   |
| 9 - fore end  | 10 - magazine                      |
| 11 - combination tool with accessories              |                                    |

4. The rifle's full-automatic function is based on using the energy of propellant gases bled from the barrel bore to the gas piston of the bolt carrier.

During the firing of a shot, a portion of the propellant gases that are driving the projectile rushes through a port in the barrel wall into the gas chamber, acts upon the front wall of the gas piston, and drives the piston and bolt carrier with bolt to the rear position. The rearward motion of the bolt opens the barrel bore, extracts the case from the chamber, and ejects it from the receiver. The bolt carrier compresses the recoil spring and cocks the hammer (places it on the auto sear notch).

The bolt carrier with bolt returns to the forward position under the impulse of the recoil mechanism. The bolt delivers the next cartridge from the magazine into the chamber and closes the barrel bore. The bolt carrier disengages the lug of the auto sear from the auto sear notch of the hammer.

Locking of the bolt is accomplished by its rotation to the right and engagement of the bolt's locking lugs with the locking recesses of the receiver.

If the selector switch is placed on automatic fire, firing will continue as long as the trigger is held and there are cartridges in the magazine.

If the selector switch is placed on semi-automatic fire, pressure on the trigger will produce a single shot. To produce a subsequent shot, it is necessary to release the trigger and press on it again.



## Chapter II

## DISASSEMBLY AND ASSEMBLY OF THE RIFLE

5. The rifle can be partially or completely disassembled. The rifle is partially disassembled for cleaning, lubrication, and inspection. The rifle is completely disassembled for cleaning when it is quite dirty, after the rifle has been in the rain or snow, when it is time to transition to a new lubricant, and during repair. Excessive, frequent disassembly of the rifle is harmful, because it accelerates the wear of components and mechanisms.

Disassemble and assemble the rifle on a table or clean drop cloth. Place components and mechanisms in the order of removal, handling them carefully. Do not place one component on top of another, and do not use excessive effort or heavy blows. Pay attention to the numbers on the rifle's components during assembly. The serial number on the receiver of each rifle corresponds to the serial number on the gas tube, bolt carrier, bolt, receiver cover, and other rifle components.

Training in disassembly and assembly on combat rifles is permitted only in exceptional circumstances, and with observation of special care in handling the components and mechanisms.

6. Procedure for partial disassembly of the rifle:

1) **Remove the magazine.** Holding the rifle in the left hand at the upper hand guard and fore end, grasp the magazine with the right hand (Figure 3). Pressing with the thumb on the latch, push the lower portion of the magazine forward and remove it. After this, ensure that **there is no cartridge in the chamber** by lowering the selector, pulling the bolt carrier handle to the rear, and inspecting the chamber. Release the bolt carrier handle and release the hammer from the sear [squeeze the trigger].



Figure 3. Remove the magazine

2) **Pull out the combination tool with accessories.** Push in on the stock well cover with a finger of the right hand so that the combination tool comes out of the well under the pressure of its spring. Open the combination tool and take out the jag, bore brush, screwdriver blade, drift, and pin.

The combination tool for the rifle with folding stock is carried in the magazine pocket of the bag.

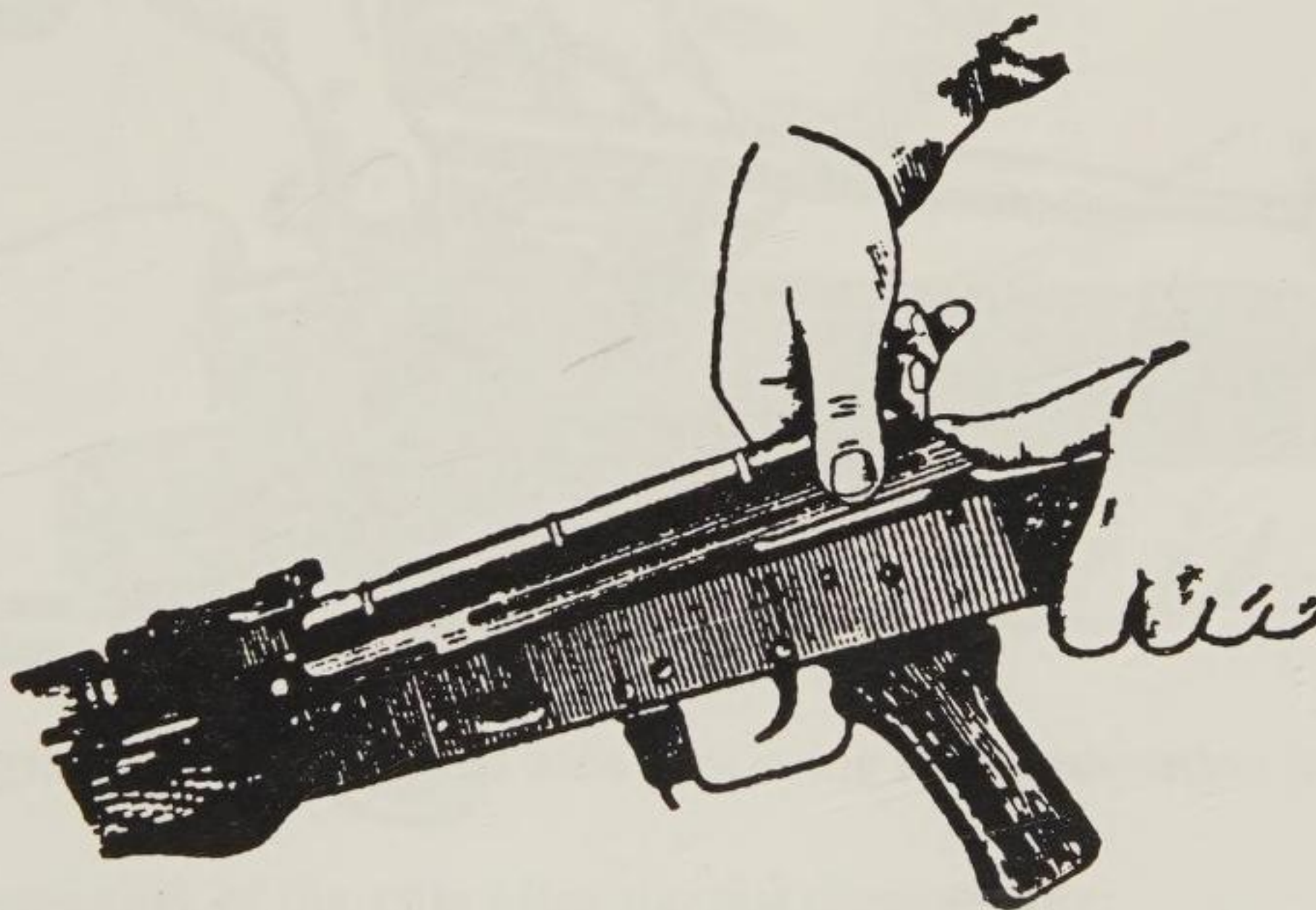
3) **Remove the cleaning rod.** Pull the end of the cleaning rod away from the barrel so that its head is disengaged from the stop on the front sight base (Figure 4) and pull the cleaning rod upward. The drift may be used when removing the cleaning rod.





**Figure 4.** Remove the cleaning rod

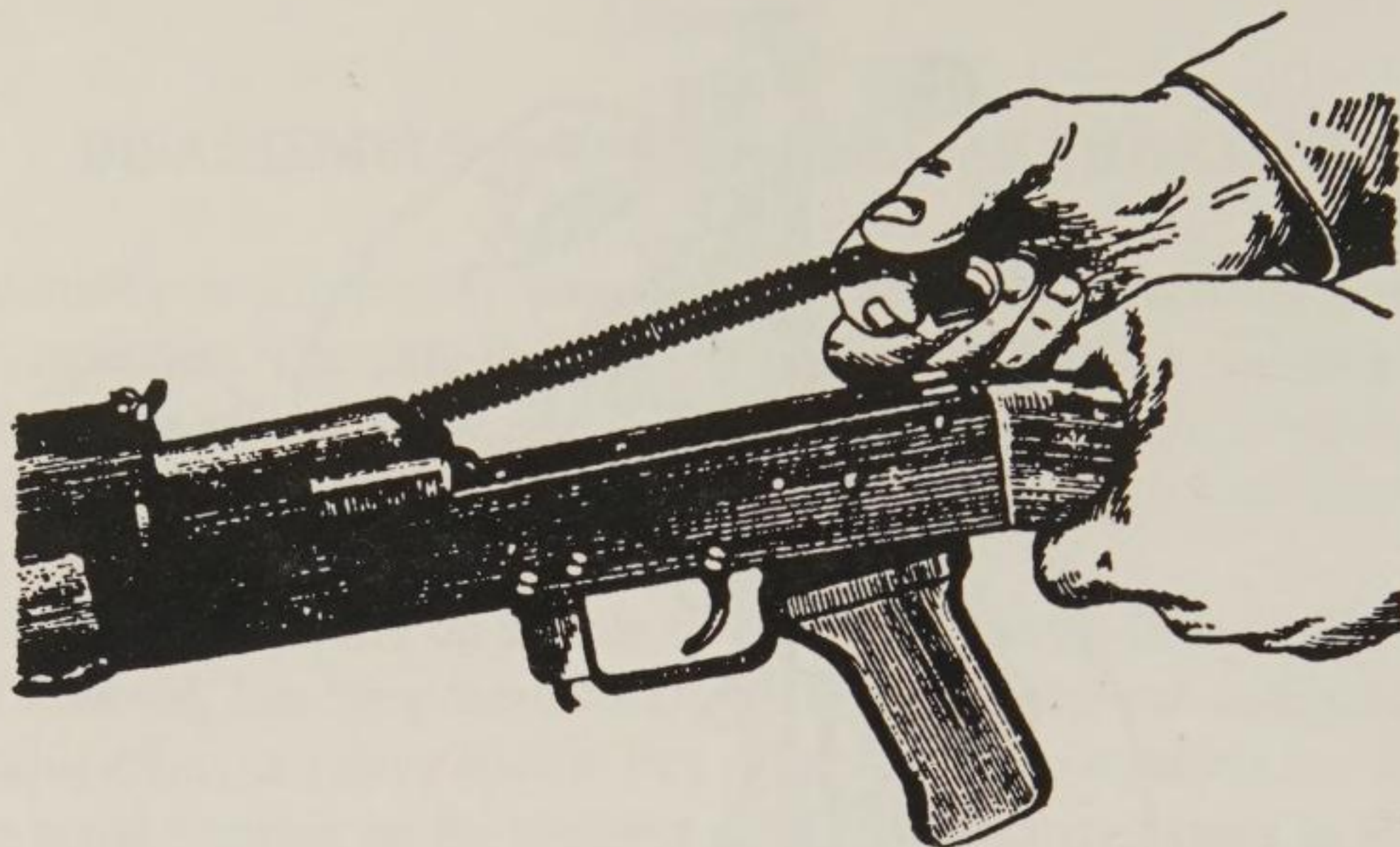
4) **Remove the receiver cover.** Grasp the small of the stock with the left hand, and with the left thumb press on the recoil mechanism guide rod lug. Lift the rear portion of the receiver cover upward with the right hand (Figure 5) and remove the cover.



**Figure 5.** Remove the receiver cover

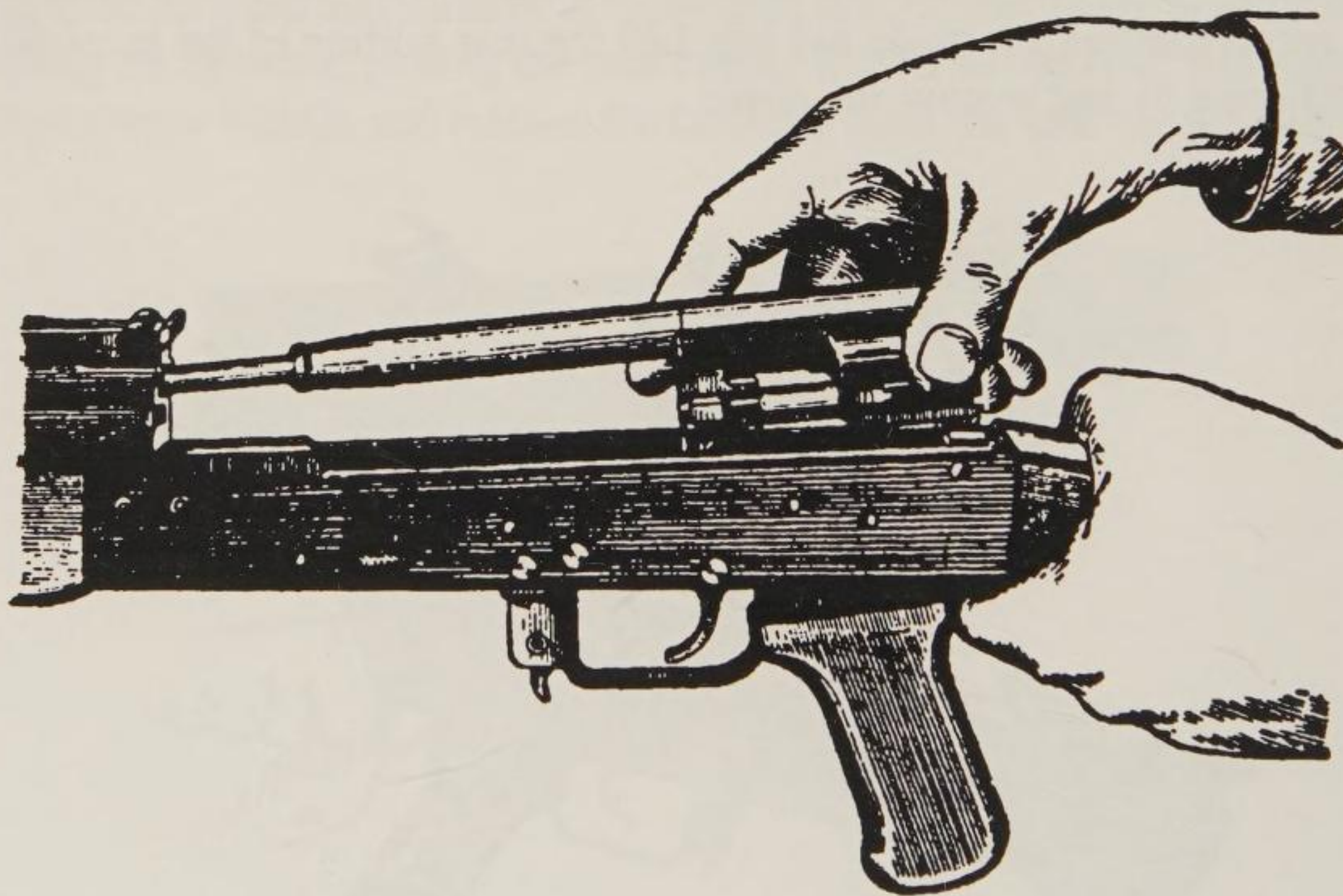
5) **Remove the recoil mechanism.** Holding the rifle in the left hand by the small of the stock, press the recoil mechanism's guide rod forward with the right hand until its heel emerges from the longitudinal slot of the receiver. Lift up the rear end of the guide rod (Figure 6) and pull the recoil mechanism from the bolt carrier channel.





**Figure 6.** Remove the recoil mechanism

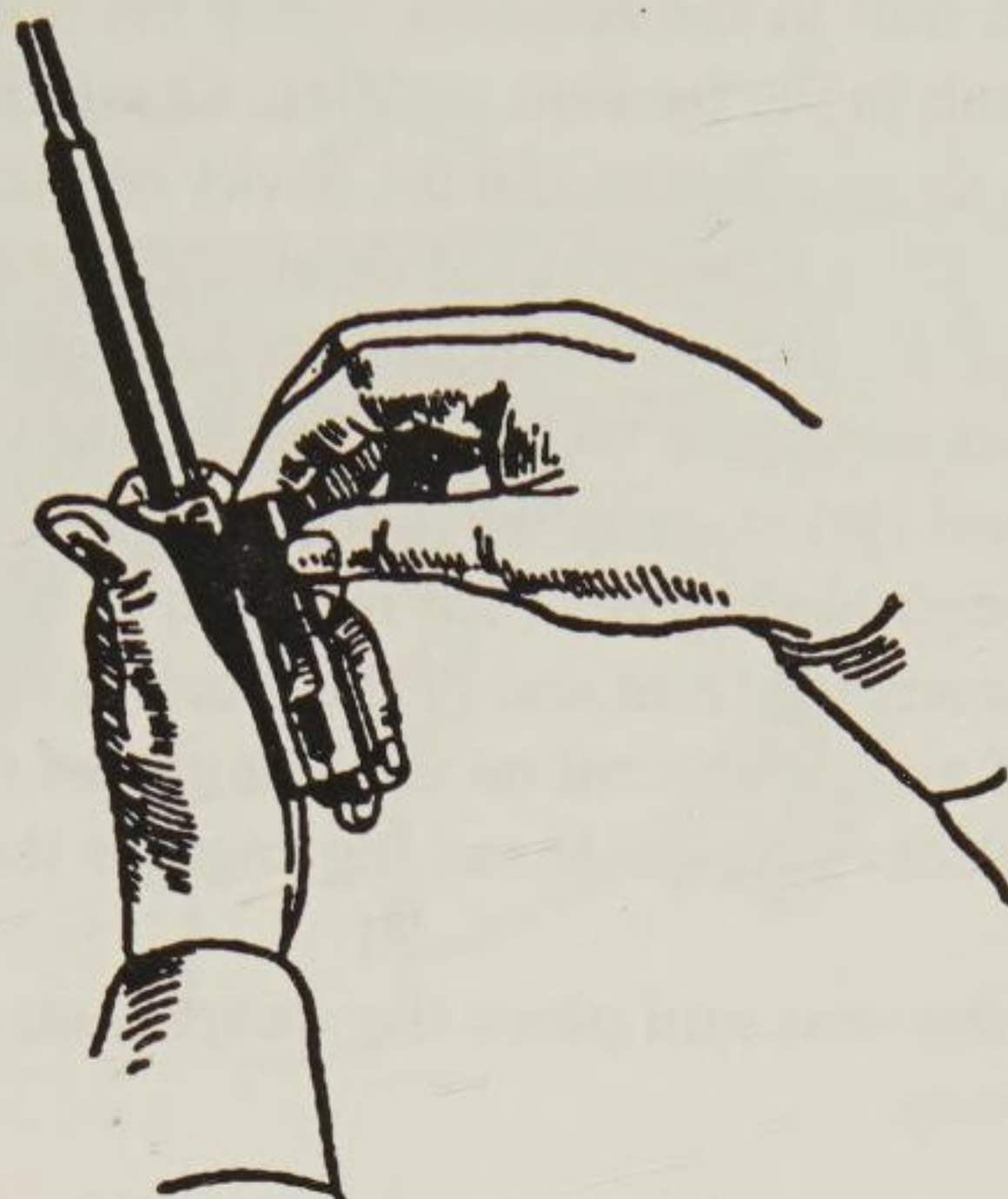
6) **Remove the bolt carrier with bolt.** Continuing to hold the rifle in the left hand, bring the bolt carrier to the rear to stop with the right hand. Lift it up along with the bolt (Figure 7) and remove it from the receiver.



**Figure 7.** Remove the bolt carrier with bolt

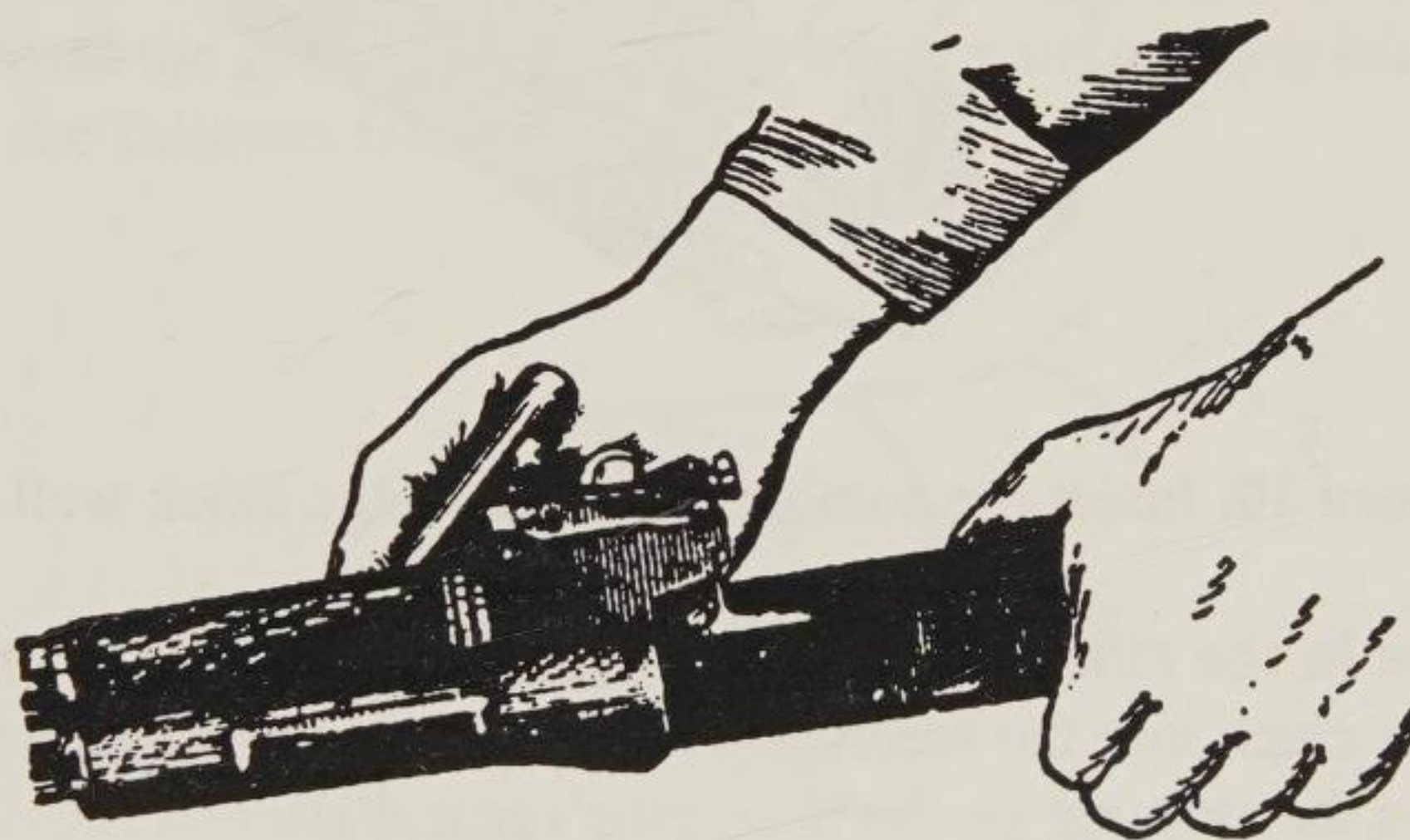
7) **Remove the bolt from the bolt carrier.** Grasp the bolt carrier in the left hand with the bolt upward (Figure 8). Draw the bolt to the rear with the right hand, rotating it so that the bolt's guide lug comes out of the shaped slot of the bolt carrier, and remove the bolt forward.





**Figure 8.** Remove the bolt from the bolt carrier

8) **Remove the gas tube with hand guard.** Holding the rifle in the left hand, fit the squared opening of the combination tool on the locking lug of the gas tube. Rotate the lock away from you to a vertical position (Figure 9) and remove the gas tube with gas chamber cylinder.



**Figure 9.** Rotate the gas tube lock using the combination tool

**7. The sequence for assembly of the rifle after partial disassembly:**

1) **Install the gas tube with hand guard.** Holding the rifle in the left hand, with the right hand insert the front end of the gas tube into the gas chamber cylinder and press the rear end of the hand guard toward the barrel. Rotate the lock toward you using the combination tool until it seats in its retainer in the notch on the rear sight base.

2) **Install the bolt in the bolt carrier.** Grasp the bolt carrier in the left hand and the bolt in the right hand, and insert the cylindrical portion of the bolt into the channel of the carrier. Rotate the bolt so that its guide lug enters the shaped slot of the bolt carrier, and move the bolt forward.



3) **Install the bolt carrier with bolt in the receiver.** Grasp the bolt carrier in the right hand so that the bolt is held by the right thumb in the forward position. Grasp the small of the stock with the left hand. With the right hand move the gas piston into the cavity of the rear sight base and move the bolt carrier forward far enough so that the flanges of the receiver fit in the slots of the bolt carrier. Press the bolt carrier to the receiver with slight pressure and move it forward.

4) **Install the recoil mechanism.** Insert the recoil mechanism into the bolt carrier's channel with the right hand. Compressing the recoil spring, push the guide rod forward and, dropping it somewhat downward, insert its heel into the longitudinal slot of the receiver.

5) **Install the receiver cover.** Insert the front end of the receiver cover in the semi-circular recess on the rear sight base. Press forward and downward on the rear end of the receiver cover with the palm of the right hand so that the recoil mechanism guide rod lug engages the hole on the receiver cover roof.

6) **Release the hammer from the sear and place the weapon on safe.** Squeeze the trigger and raise the selector switch upward to stop.

7) **Install the cleaning rod.**

8) **Place the combination tool in the stock well.** Place the accessories in the combination tool and close its cover. Place the combination tool in the stock well (Figure 10) and push it in until the stock well cover closes. The combination tool for the AKMS is stored in the magazine pocket of the carrying bag.



**Figure 10.** Insert the combination tool in the stock well

9) **Install the magazine in the rifle.** Holding the rifle by the left hand at the small of the stock or fore end, insert the magazine catch into the receiver well (Figure 11) and rotate the magazine toward you so that the latch engages the stop lug on the magazine's rear wall.

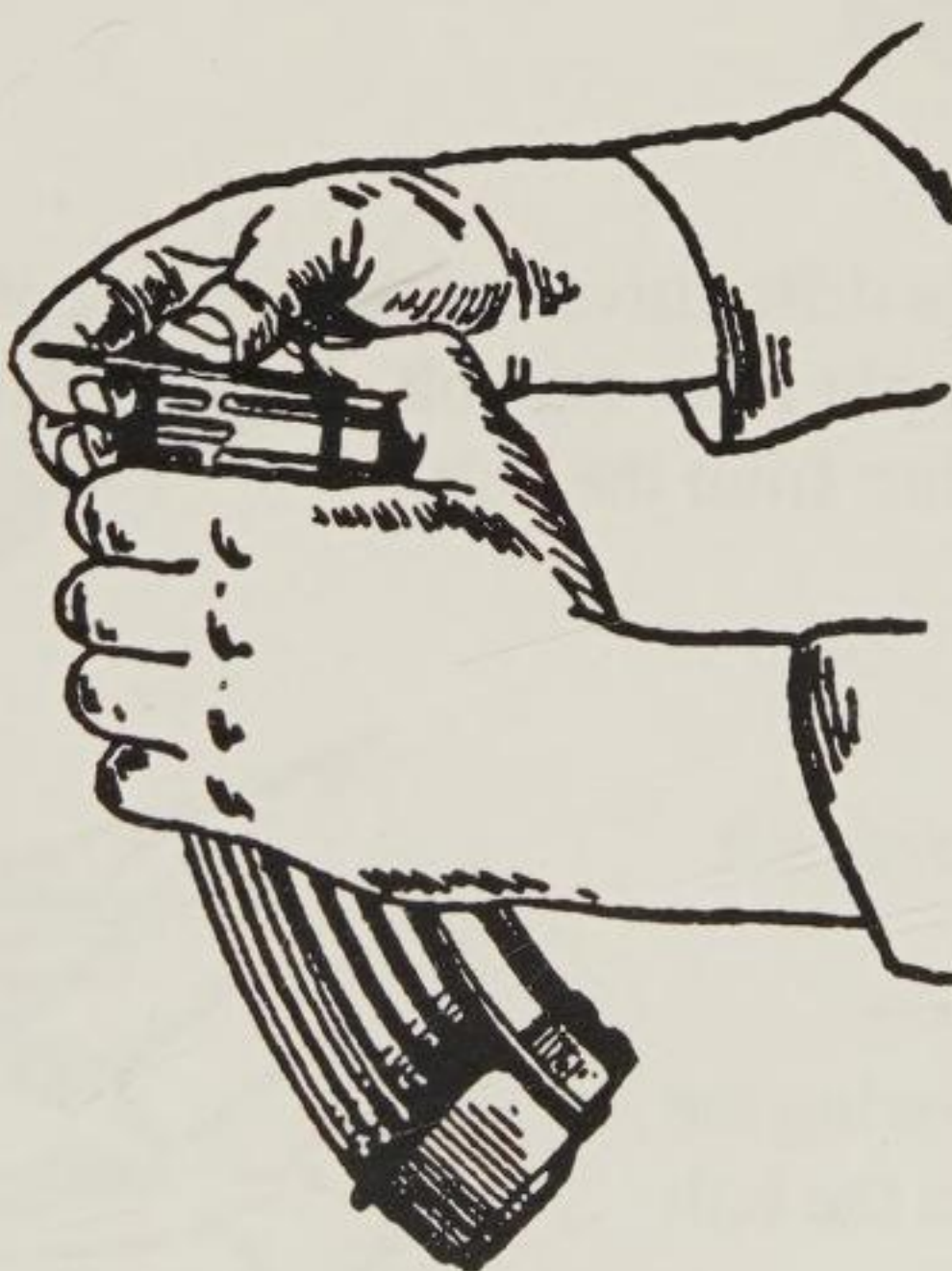




**Figure 11.** Install the magazine

**8. Procedure for complete disassembly of the rifle:**

- 1) **Accomplish partial disassembly in accordance with paragraph 6.**
- 2) **Disassemble the magazine.** Grasp the magazine in the left hand with floor plate upward, convex portion away from you. Using the drift, with the right hand press downward on the stop leaf in the hole of the magazine floor plate. Move the floor plate slightly forward with the thumb of the left hand (Figure 12) and remove the floor plate with the right hand, being careful to secure the stop leaf with the left thumb. Gradually release the spring and remove it along with the stop leaf and follower from the magazine body. Remove the follower from the spring.



**Figure 12.** Remove the magazine floor plate



3) **Disassemble the recoil mechanism.** Grasp the recoil mechanism in the left hand. Position the guide rod vertically with the heel down on the table or rest. Compress the recoil spring downward, and with the right hand separate the end of the movable rod and remove the collar (Figure 13). Remove the spring from the guide rod. Remove the movable rod from the guide rod.



**Figure 13.**  
Remove the collar from the  
recoil mechanism

4) **Disassemble the bolt.** With the drift, drive out the pin that retains the firing pin and extractor pin (Figure 14), and remove the firing pin from the bolt channel. With the drift, drive out the extractor pin and remove the extractor with spring from the bolt.

**Figure 14.**  
Drive out the pin when removing the  
extractor and firing pin from the bolt





5) **Disassemble the trigger mechanism (disassembly is accomplished only under the supervision of an officer or weapons repairman):**

- **remove the semi-automatic fire sear, hammer retarder, and trigger piece:** Holding the rifle with the left hand at the receiver, press on the auto sear lever and disengage the auto sear from the hammer with the right hand and using the drift. Release the hammer from the sear. Raise the left end of the hammer spring with the tapered end of the drift and guide it past the hammer's sear notch with the fingers. Guide the long end of the auto sear spring out of the circular channel of the trigger pin with the screwdriver. Tap the trigger pin to the left with the drift and remove it. Gradually pulling the drift out, extract the semi-automatic fire sear from the receiver along with its spring, spring retarder, and hammer retarder with the fingers of the left hand (Figure 15). Pressing back on the trigger piece with the left index finger, lift the trigger upward and remove it from the receiver with the right hand (Figure 16).

**Figure 15.**

Guide the right end of the hammer spring past the hammer's sear notch lug



**Figure 16.**

Remove the trigger from the receiver



- **remove the hammer:** Pressing with the screwdriver on the long end of the auto sear spring, remove it from the circular channel of the hammer pin. Tap the hammer pin to the left with the drift. Holding the hammer with the right hand, remove the hammer pin with the left hand. Rotate the hammer so that the left trunnion is toward the chamber and remove the hammer from the receiver (Figure 17). Remove the hammer spring from the hammer.

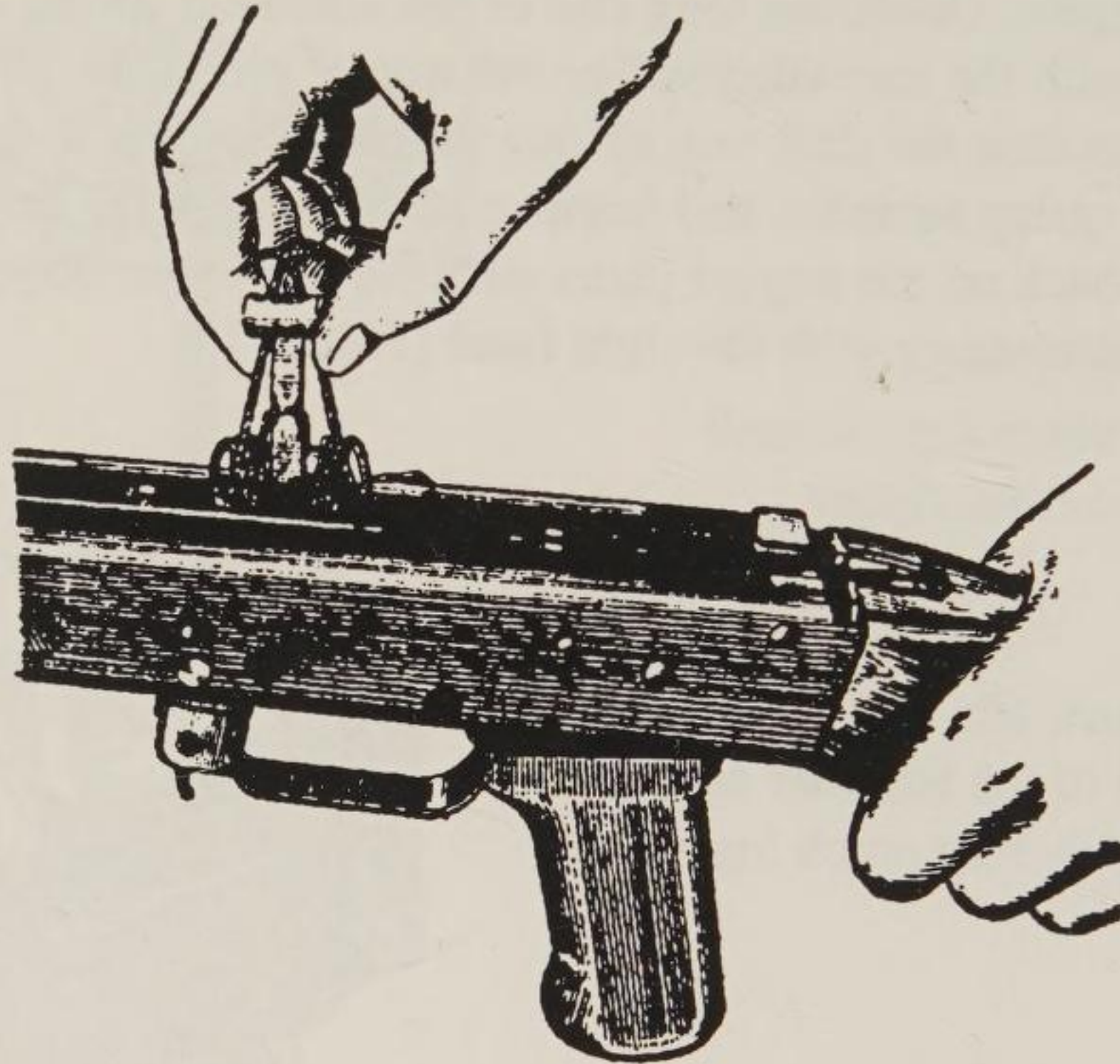


Figure 17. Remove the hammer from the receiver

- **remove the auto sear:** Tap the auto sear pin to the left with the drift and remove it. Remove the auto sear with spring through the magazine well (Figure 18). Remove the spring from the auto sear.

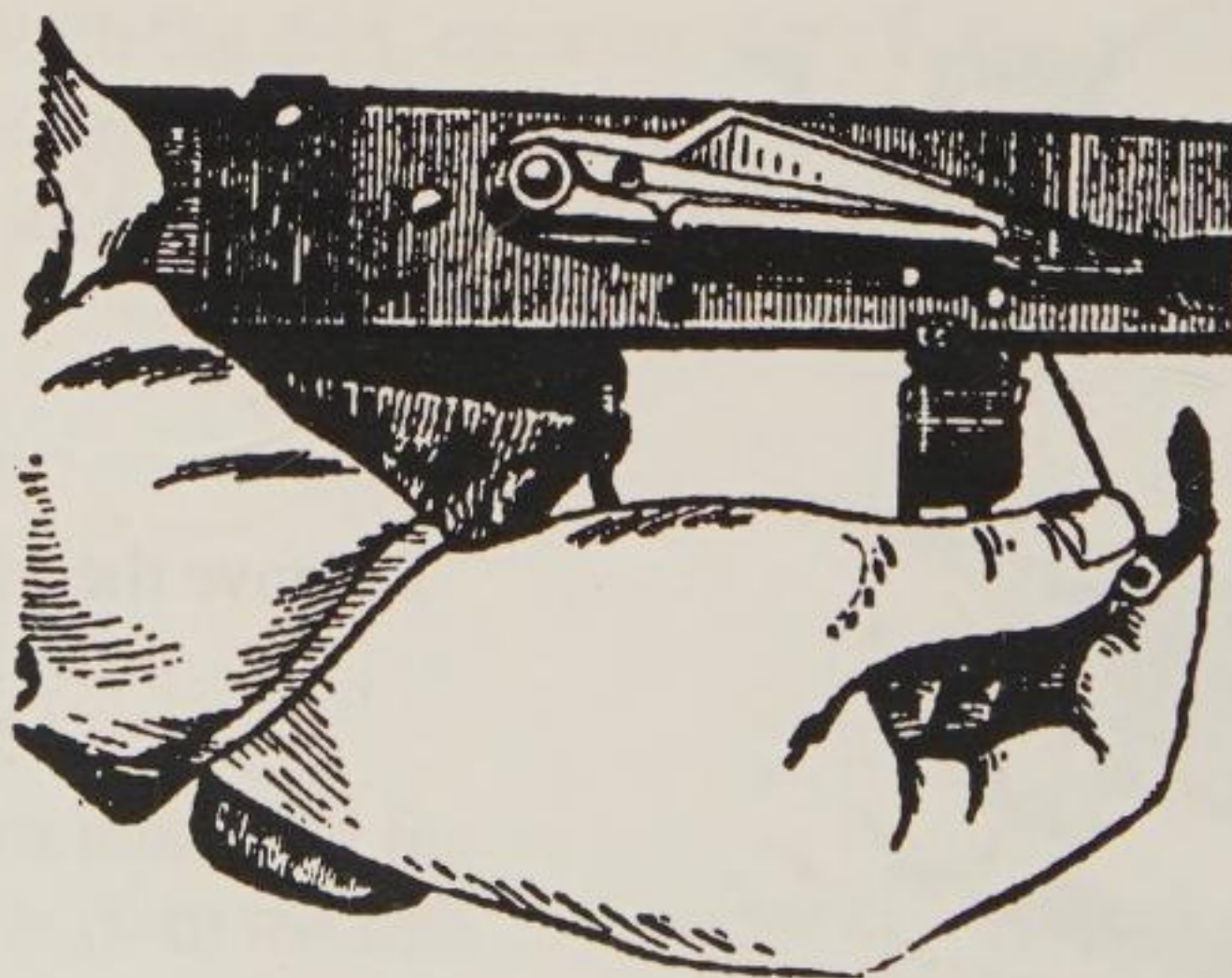
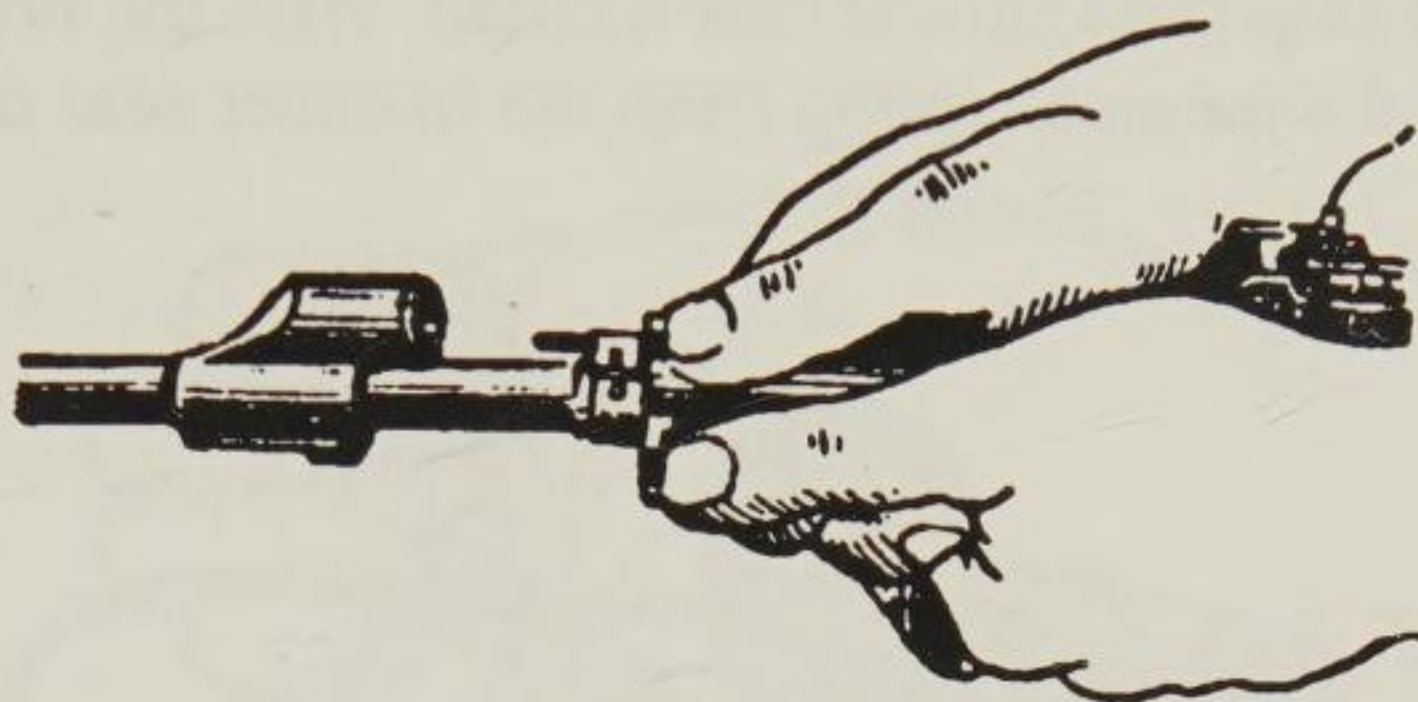


Figure 18. Remove the auto sear with spring from the receiver

- **remove the selector:** Rotate the selector upward to the vertical position, move it to the right, and remove it from the receiver.



6) **Remove the fore end** (the fore end is removed in rare cases: during the removal of depot lubrication, after dropping the rifle in the water, and so on). Grasp the rifle at the fore end in the left hand. With the right hand, using the screwdriver or combination tool, rotate the fore end lock one-half turn forward. Displace the connecting collar with fore end toward the gas chamber with the thumbs of both hands (Figure 19). Press forward on the fore end and remove it from the barrel.



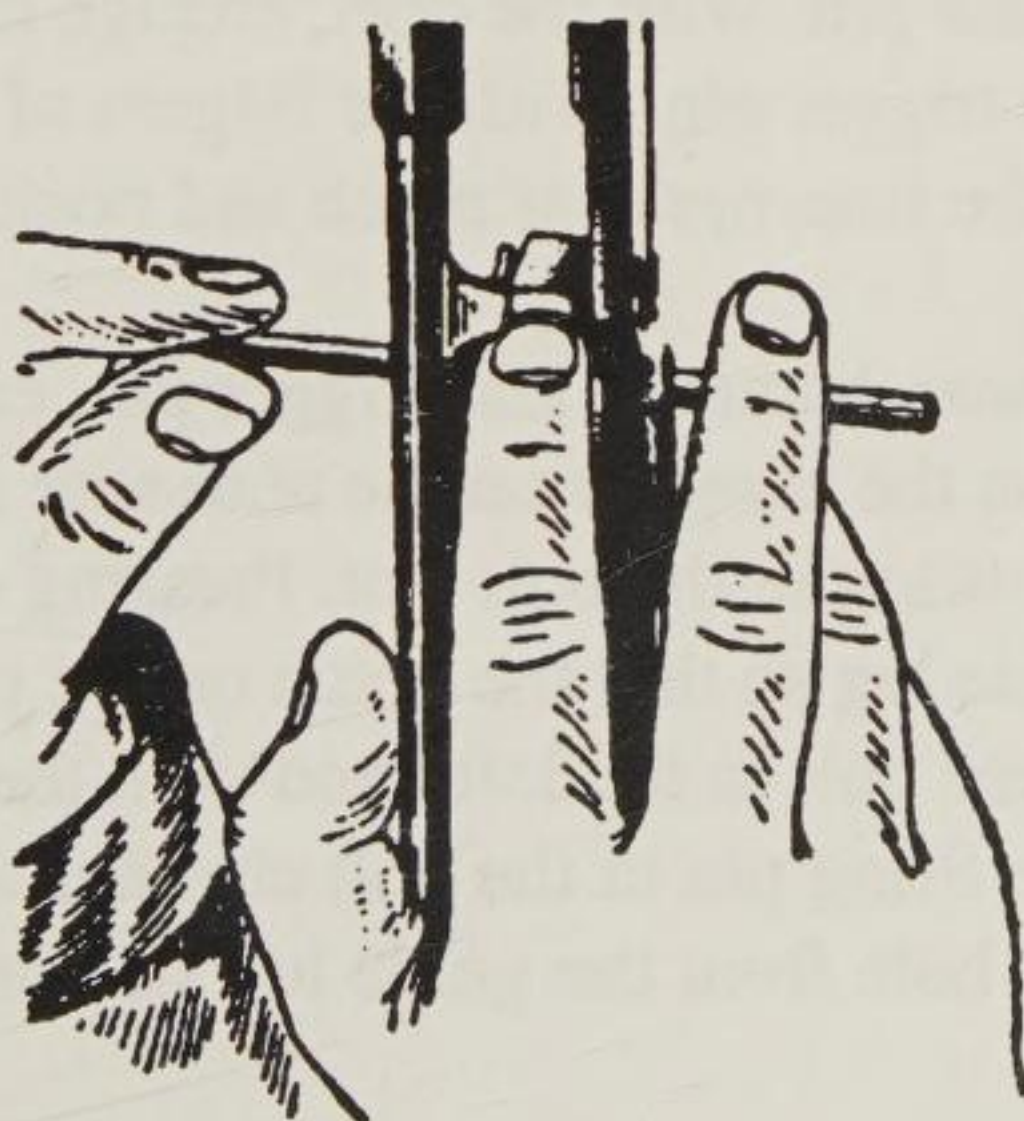
**Figure 19.** Displace the connecting collar

#### 9. Procedure for assembly of the rifle after complete disassembly:

1) **Install the fore end:** Holding the rifle in the left hand at the receiver, lay the fore end on the barrel with the right hand and slide it toward the receiver so that the fore end lug enters the socket of the receiver. Move the connecting collar on the fore end and rotate the lock one-half turn to the rear.

2) **Assemble the firing mechanism** (to avoid mixing up the firing mechanism components of several rifles, before assembly it is necessary to check the number on the semi-automatic fire sear, trigger, retarder, hammer, and auto sear):

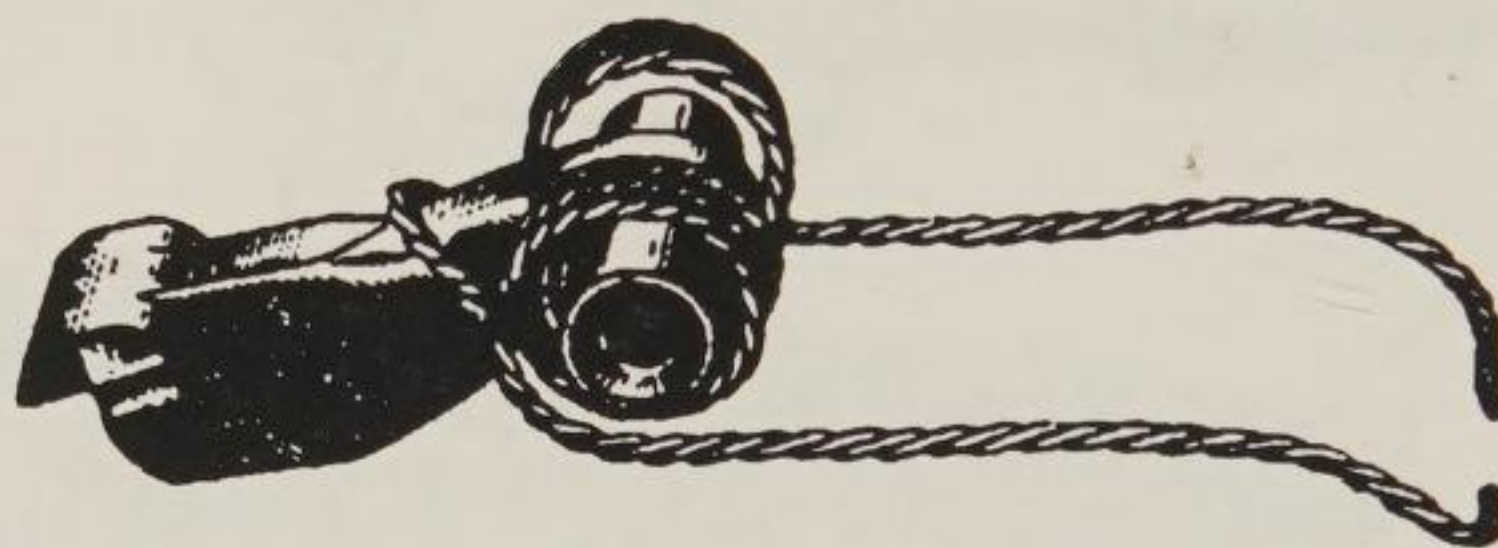
- **install the selector:** Holding the rifle in the left hand, with the right hand insert the selector sector into the shaped hole of the right receiver wall so that the pins enter the holes in the receiver walls. Position the selector on automatic fire (AB).
- **install the auto sear:** Insert the short end of the spring in the hole of the auto sear lug and insert the auto sear with spring into the receiver through the magazine well. Place the auto sear lever in its place and insert the drift into the hole for the auto sear pin and spring from the right. Holding the auto sear with spring in the right hand, insert the pin with the left hand (Figure 20).



**Figure 20.**  
Insertion of the auto sear pin



- **install the hammer:** Install the hammer spring on the hammer trunnions with the loop on the sear notch side (Figure 21) and position the ends of the spring on the sear notch. Holding the hammer and the spring ends in the fingers of the right hand, insert the hammer in the receiver with the left trunnion toward the chamber. Press the long end of the auto sear spring toward the bottom of the receiver with the index finger of the left hand, rotate the hammer, and align its shaft hole with the corresponding holes in the receiver. Insert the hammer pin from the left, moving it to the right to stop (you should hear a click). With the fingers of the right hand, remove the right end of the hammer spring from the hammer sear notch and drop it to the bottom of the receiver.



**Figure 21.** Position of hammer spring on hammer

- **join the semi-automatic fire sear and hammer retarder to the trigger:** Insert the spring in the hole of the semi-automatic fire sear. Holding the trigger by the tail in the left hand, with the right hand position the semi-automatic fire sear on it so that the lower end of the sear spring enters the notch of the trigger piece. Then position the hammer retarder spring, with long end up and forward, between the sear and the right wall of the trigger. Align the holes for the trigger piece, sear, and retarder spring with the fingers of the right hand, and insert the tapered end of the dowel into them from the left side (this dowel is stored in the combination tool). Install the hammer retarder on the dowel from the right side and slide it to the right to stop. Using the drift, engage the long end of the spring in the slot of the retarder catch.
- **install the trigger:** Position the trigger piece in its place in the receiver. Lift up the right end of the hammer spring with the drift and place it on the rectangular lug of the trigger. Insert the trigger pin with the left hand, gradually tapping the pin toward the right side. The long end of the auto sear spring should be located above the pin. With the drift, engage the long end of the auto sear spring in the circular channel of the trigger pin. With the fingers of the right hand, take the left end of the hammer spring from the hammer sear notch and position it on the rectangular lug of the trigger piece.

With pressure of the drift on the end of the auto sear, hammer, and trigger pin, ensure that the long end of the auto sear spring is held by the pin. Position the hammer on the auto sear notch.

3) **Assemble the bolt.** Insert the extractor with spring in the bolt slot. Pressing on the extractor, insert the extractor pin in the hole under the bolt guide lug so that the notch on the pin is turned toward the side of the cylindrical portion of the bolt. Grasp the bolt in the left hand with the guide lug upward and the cylindrical portion toward you, and insert the firing pin in the bolt channel with the large notch upward. Install the firing pin retaining pin in the bolt hole from the guide lug side and seat it fully.



4) **Assemble the recoil mechanism.** Resting the heel of the guide rod on the table or rest, install the spring on the guide rod and compress it far enough so that the end of the guide rod emerges. Holding the spring with the left hand, spread the ends of the movable rod with the right hand, thread one of the ends into the loop that has been formed and release the spring to the stop on the movable rod (Figure 22). Install the collar between the ends of the movable rod. Compress the spring with the left hand, and with the right hand move the movable rod to the vertical position. Smoothly release the spring to stop on the collar.



**Figure 22.** Assemble the recoil spring

5) **Assemble the magazine.** Join the follower to the magazine spring by engaging the first coil of the free end of the spring under the lip of the follower. Insert the spring with follower into the magazine body. Push the stop leaf into the body and, holding it in this position, install the magazine floor plate on the body so that it is held on the lips of the body by its guides, and the stop leaf lug engages in the hole of the floor plate (you should hear a click).

6) **Accomplish subsequent assembly in accordance with paragraph 7.**



# 10. Fixing and unfixing the bayonet-knife:

1) **Fixing the bayonet-knife.** Remove the bayonet-knife from the sheath. Grasp the rifle in the left hand by the hand guard and fore end with the front sight to the left. Holding the bayonet-knife by the handle in the left hand, slide it by its slots to stop on the gas chamber (Figure 23), with the ring over the barrel sleeve until the latch is fully covered.

2) **Unfixing the bayonet-knife.** Grasp the rifle in the left hand and move it to the vertical position. Holding the bayonet-knife handle in the index and middle finger, press on the latch with the thumb of this hand (Figure 24). Remove the bayonet-knife from the rifle and secure it in the scabbard.



Figure 23. Fix the bayonet-knife



Figure 24. Unfix the bayonet-knife



## Chapter III

# NOMENCLATURE AND CONSTRUCTION OF THE RIFLE'S COMPONENTS AND MECHANISMS, ACCESSORIES, AND CARTRIDGES

## Nomenclature and construction of the rifle's components and mechanisms

**11.** The **barrel** (Figure 25) serves to guide the flight of the bullet. Internally, it has a bore with four clockwise grooves. The grooves impart rotational movement to the bullet. The spaces between the grooves are called lands. The distance between two opposite lands (in diameter) is the caliber of the barrel bore, 7.62mm in this rifle. The breech portion of the barrel is smooth and machined in the shape of the cartridge case. This portion of the barrel bore houses the cartridge and is called the chamber. The transition from the chamber to the rifled portion of the barrel bore is called the projectile chamber.

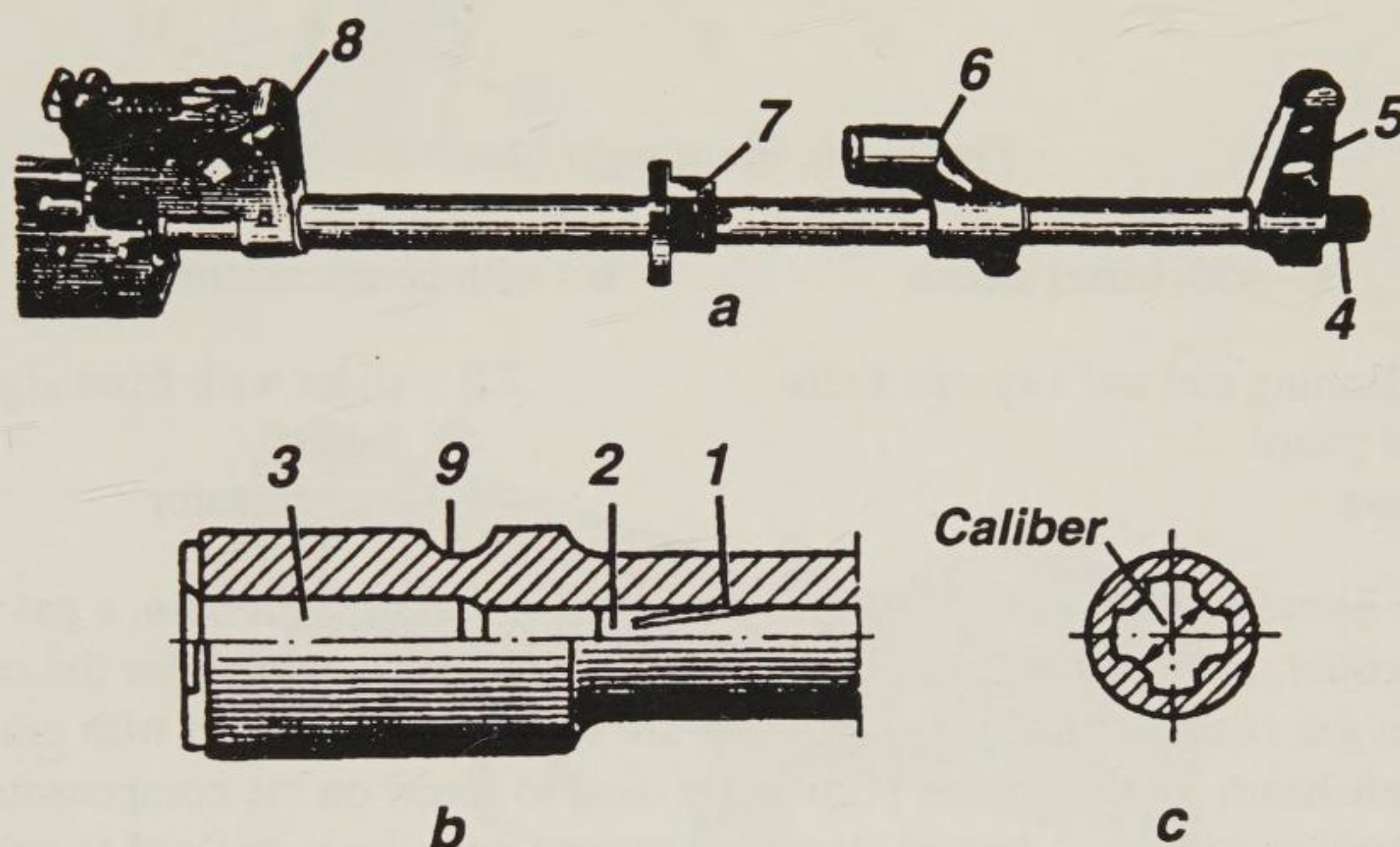


Figure 25. Barrel:

a - external view

b - cutaway of breech portion

c - cross section of barrel

1 - rifled portion

3 - chamber

5 - front sight base

7 - joining collar

9 - recess for barrel pin

2 - bullet chamber

4 - threads

6 - gas chamber

8 - rear sight mount



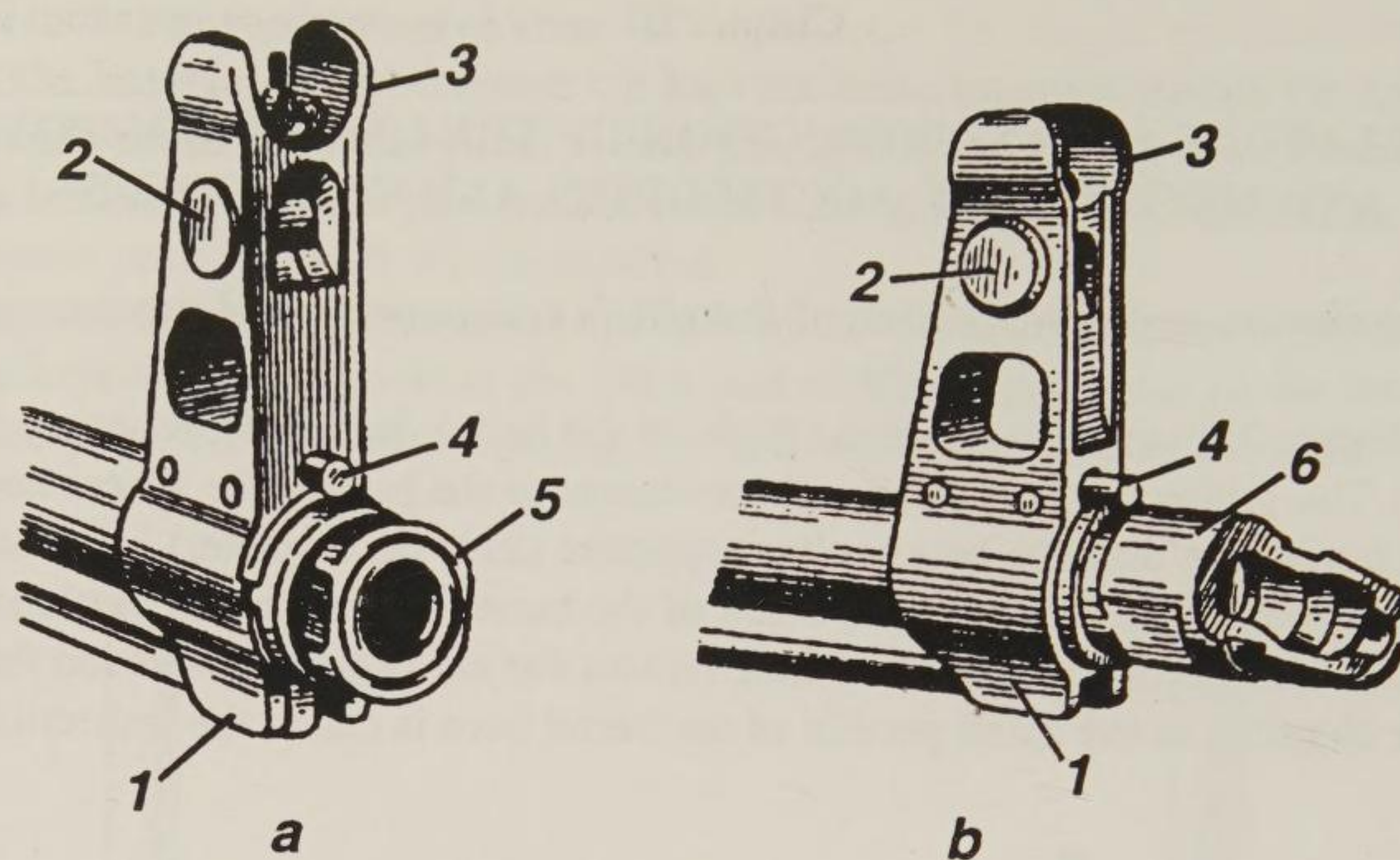


Figure 26. Front sight base:

a - with barrel sleeve

b - with compensator

- 1 - stop for cleaning rod and bayonet-knife
- 3 - front sight guard
- 5 - barrel sleeve

- 2 - slider with front sight
- 4 - detent
- 6 - compensator

Externally, the barrel has threads at the muzzle portion, the front sight base, a gas port, a gas chamber, a joining collar, the rear sight mount, and on the breach face a notch for the extractor claw. The front sight base, gas chamber, and rear sight base are secured to the barrel with pins.

The threads (left-hand) on the muzzle portion are used to screw on the compensator, and an adapter for firing blank cartridges. A **barrel sleeve** is screwed onto the barrel end to protect the threads from damage.

The **compensator** (Figure 26) increases the accuracy of the rifle when it is fired in bursts from an unsupported position (on the march, standing, kneeling). It has a cylindrical portion for screwing onto the barrel and a cutaway body. On the rear of the cylindrical portion is a slot into which the detent fits, holding the compensator to the barrel in the proper attitude. The inner surface of the compensator's body has recesses that form the compensating chamber and a shoulder. After the flight of the bullet from the barrel bore, gases rushing into the compensating chamber create excess pressure that pushes the muzzle portion of the rifle toward the compensator body—to the left and downward. The outer surface of the compensator body has a T-shaped slot to hold the combination tool cap during cleaning of the barrel bore.

The **front sight base** (Figure 26) has a stop for the cleaning rod and the bayonet-knife handle, a hole for the front sight slider, the front sight guard, and detent with spring. The detent holds the blank adapter from unscrewing from the barrel when firing blank cartridges, the compensator body, and also the cap of the combination tool from rotation during cleaning of the barrel bore.



The **gas chamber** directs propellant gases from the barrel to the gas piston of the bolt carrier. It has a cylinder with bore for the gas piston and ports for the escape of propellant gases, a canted gas port, and a stop for the bayonet-knife handle. The cleaning rod fits in the lug of the stop.

The **joining collar** connects the fore end to the rifle. It has a fore end lock, a sling swivel, and a hole for the cleaning rod.

The barrel is joined to the receiver with a pin and is not disassembled.

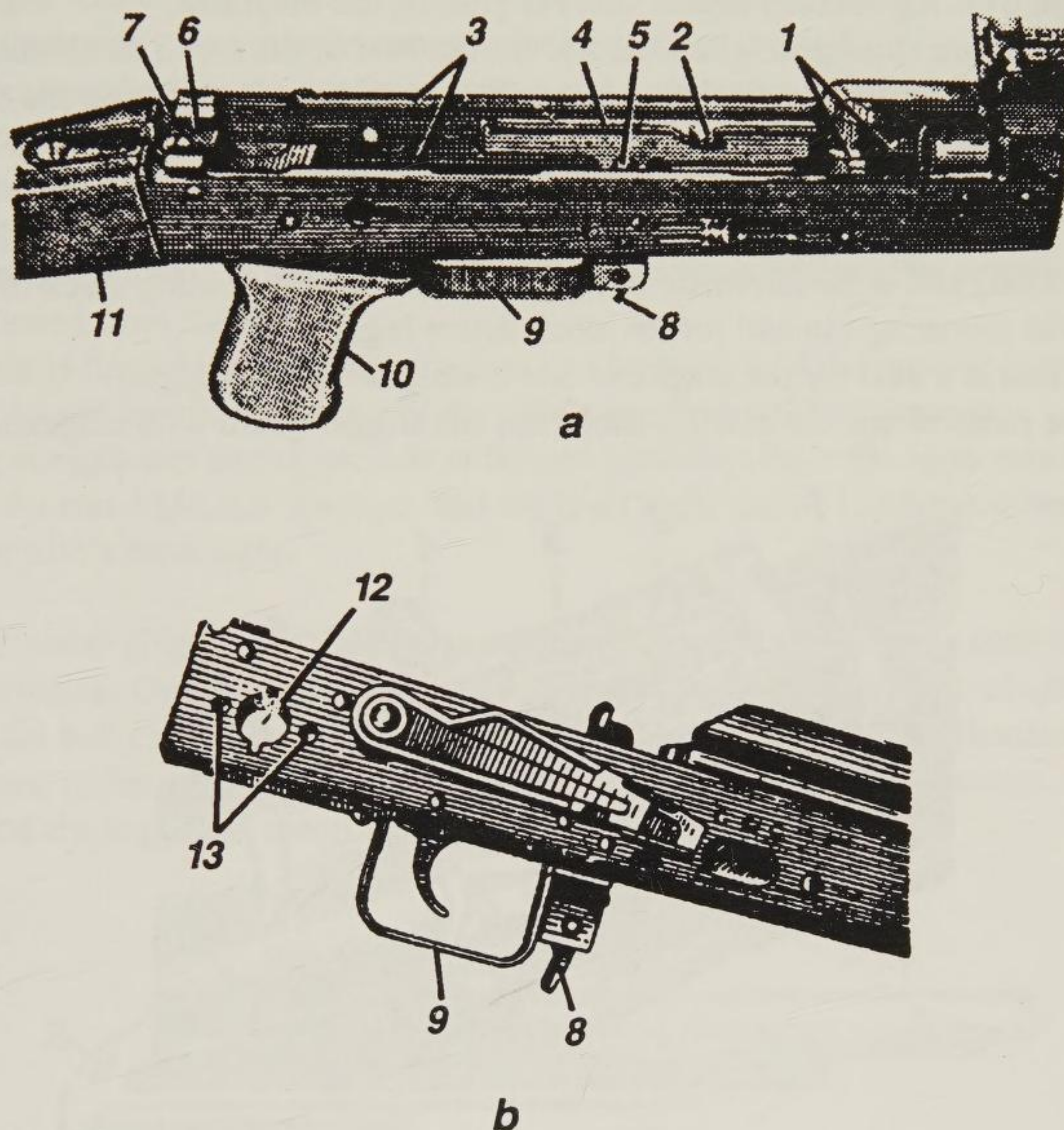


Figure 27. Receiver:

a - AKM

b - AKMS

- 1 - notches
- 3 - flanges
- 5 - cross bridge
- 7 - transverse slot
- 9 - trigger guard
- 11 - stock
- 13 - holes for folding stock detent lugs

- 2 - ejector lug
- 4 - guide lug
- 6 - longitudinal slot
- 8 - magazine latch
- 10 - pistol grip
- 12 - hole for folding stock mounting pin



12. The **receiver** (Figure 27) joins the rifle's components and mechanisms, ensures the closing of the barrel bore by the bolt, and locking of the bolt. The trigger mechanism is housed in the receiver. The receiver is covered on the top with a cover.

The receiver has:

- inside—recesses for locking the bolt, the rear walls of which are locking lugs; flanges and guide lugs for guiding the movement of the bolt carrier and bolt; an ejector lug for ejecting the case; a cross bridge for strengthening the lateral walls; a lug for catching the magazine; and a single oval lug on each lateral wall for guiding the magazine.
- on the top rear are slots: a longitudinal slot for the heel of the recoil mechanism guide rod, and a transverse slot for the receiver cover; a tang with hole for securing the stock to the receiver;
- on each of the lateral walls are four holes, three for the pins of the trigger mechanism, and the fourth for the safety pin; on the right wall are two detent recesses for setting the selector on automatic (AB) and semi-automatic (OД) fire. The rifle with folding stock has additional holes for the mounting pin and for the stock detent lugs.
- on the bottom is a well for the magazine and a window for the trigger.

Attached to the receiver are: the stock, pistol grip, and trigger guard with magazine latch.

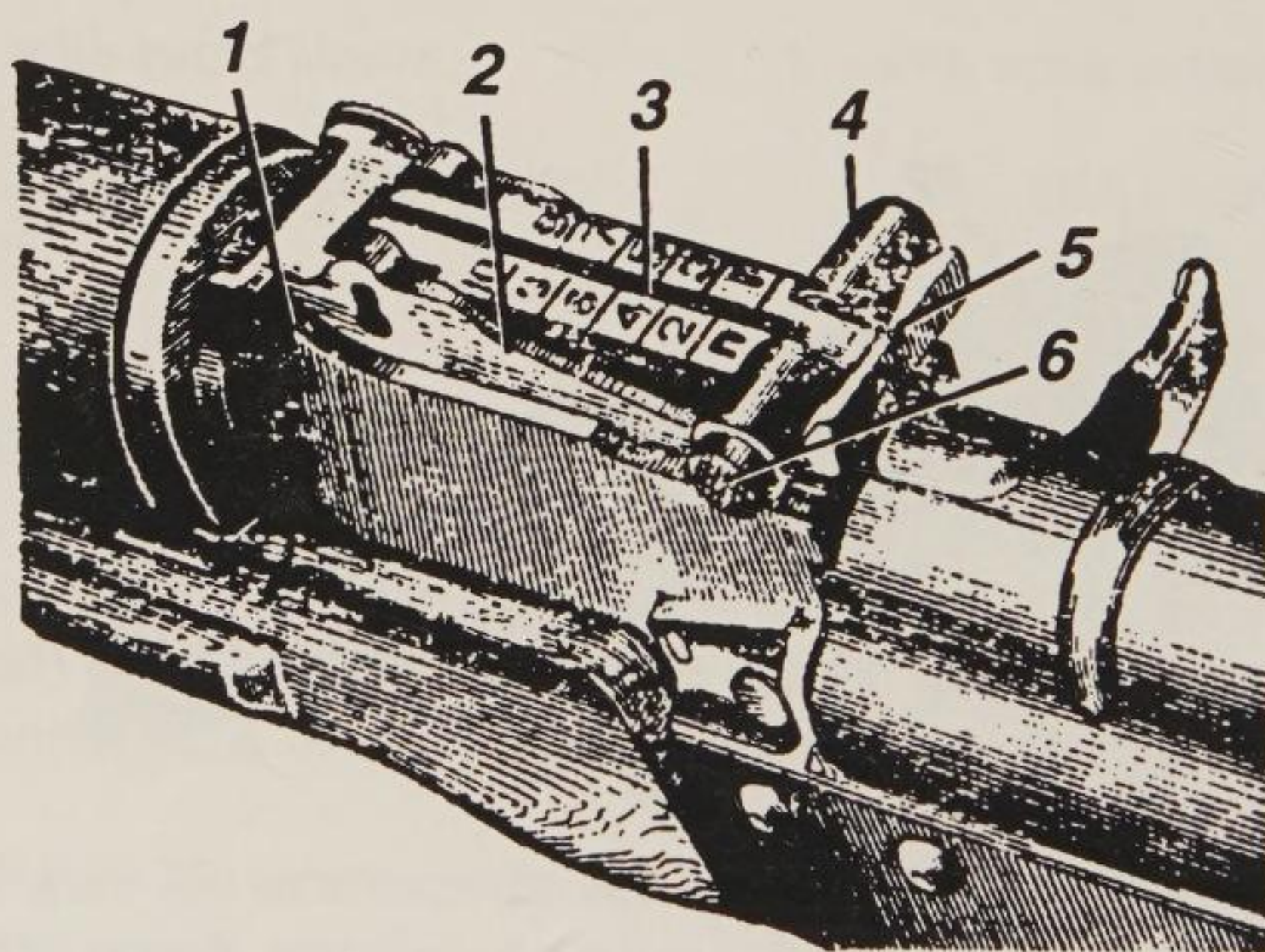


Figure 28. Rear sight:

- |                      |                  |
|----------------------|------------------|
| 1 - rear sight mount | 2 - sector       |
| 3 - sight leaf       | 4 - slider       |
| 5 - rear aperture    | 6 - slider catch |

13. The **sight apparatus** is used for aiming the rifle when firing at targets at various ranges. It consists of the rear and front sights.

The **rear sight** (Figure 28) consists of the sight mount, leaf spring, sight leaf, and slider.

The **rear sight mount** has: two sectors for imparting a specific height to the sight leaf, bosses for securing the sight leaf, and holes for the gas tube pin and lock. Inside are a well for the leaf spring and a cavity for the bolt carrier. On the rear wall is a semi-circular notch for the receiver cover. The sight mount is affixed to the barrel and secured with a pin.



The **leaf spring** fits in a well on the sight mount and holds the sight leaf in the set position.

The **sight leaf** has an aperture piece with notch for aiming and notches for holding the slider at the set position by means of a latch with spring. A scale with graduations from 1 to 10 and the letter  $\Pi$  is etched on the leaf. The scale numbers represent the firing range in hundreds of meters. The  $\Pi$  is a constant sight setting that corresponds to a sight setting of 3.

The **slider** fits on the sight leaf and is held in the set position by a latch. The latch has a tooth that catches in the notch of the sight leaf under the impulse of the spring.

The **front sight** screws into a slider that is secured in the front sight base. The slider and front sight base are marked with a line that determines the position of the sight.

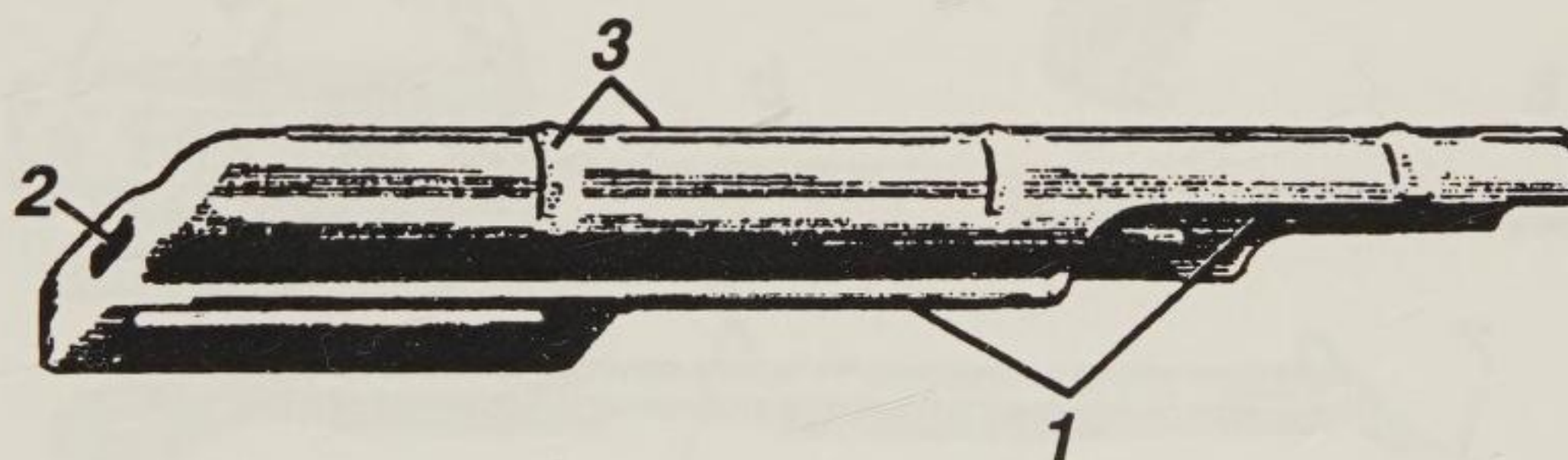
Rifles of recent production are equipped with a sight apparatus for night firing (self-illuminating aperture). Each apparatus consists of a folding rear sight with broad notch, mounted on the existing rear sight aperture, and a wide front post that fits over the existing front sight post. The rear and front sights of this apparatus bear luminescent dots.

The night firing apparatus is mounted on the rifle upon issue of the rifles to troops and subsequently is not removed from the rifle.

When the rifle is fired during the day, the rear and front sight of the apparatus are folded down. In this position they do not interfere with use of the rifle's standard sighting apparatus.

When firing at night and during periods of limited visibility, the sight apparatus is rotated upward into contact with the rear sight leaf aperture, and the front sight device is moved upward on a spring and fitted over the rifle's front sight.

**14. The receiver cover** (Figure 29) protects the components and mechanisms contained in the receiver against contamination. On the right side it has a stepped cutaway for passage of ejected casings and for movement of the bolt carrier handle. On the rear is a hole for the recoil mechanism guide rod lug. The cover is secured to the receiver by a semi-circular notch on the rear sight mount, a transverse notch on the receiver, and the lug of the recoil mechanism guide rod.



**Figure 29. Receiver cover:**

1 - stepped cutaway

2 - hole

3 - strengthening ribs



15. The stock and pistol grip (Figure 30) provide for ease in handling the rifle.

The wooden stock has a sling loop and metal buttplate with cover over the well. A spring for presenting the combination tool with accessories is seated in the bottom of this stock well.

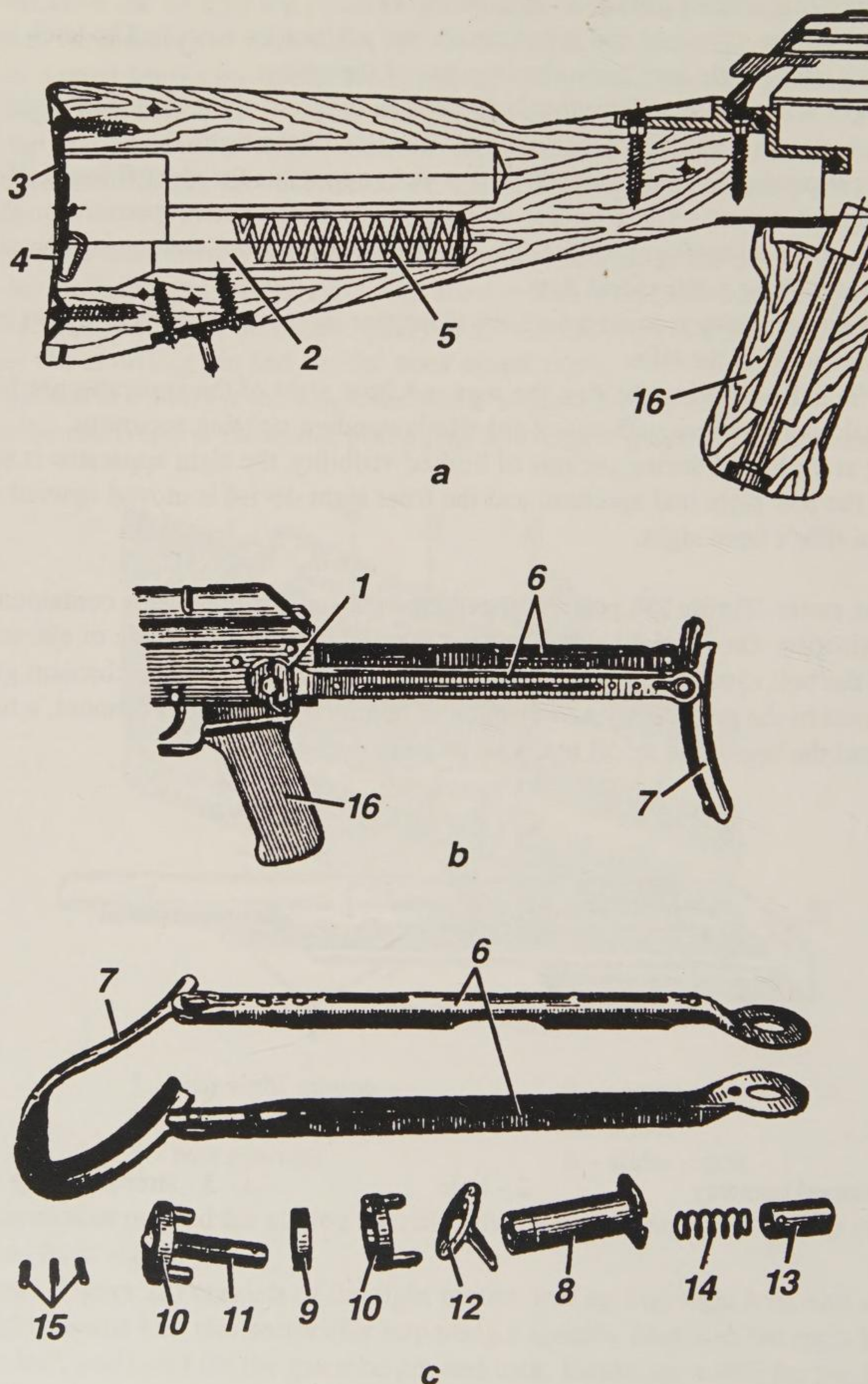


Figure 30. Stock and pistol grip:



a - wooden stock

b - folding stock

c - folding stock in disassembled form

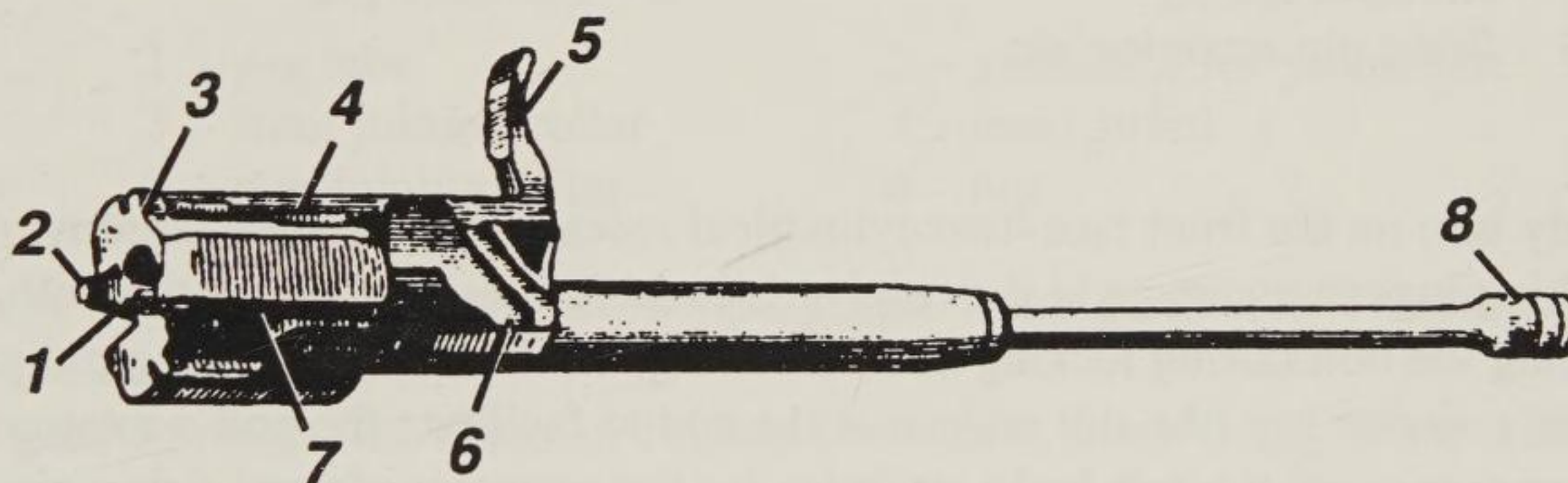
- 1 - sling loop
- 3 - butt plate
- 5 - spring for presenting combination tool
- 7 - shoulder rest
- 9 - nut
- 11 - connecting rod
- 13 - spring cap
- 15 - pins

- 2 - stock well for accessories
- 4 - cap
- 6 - rods
- 8 - stock mounting pin
- 10 - stock detent
- 12 - sling loop
- 14 - spring
- 16 - pistol grip

The folding stock consists of two rods, the shoulder rest, mounting pin with nut, two stock detents with a mounting bolt anchor, a washer with sling loop, spring cap, spring, and three pins. The flange holes on the ends of the rods fit on the stock mounting pin and are secured with the nut. Each rod has two holes for the stock detent lugs, which hold the stock in the folded or deployed position. The stock detents are joined together on a connecting rod and are displaced to the right with pressure on the spring cap, and to the left by the action of the spring.

**16. The bolt carrier with gas piston** (Figure 31) brings the bolt and firing mechanism into action.

The bolt carrier has: inside—channels for the recoil mechanism and bolt; on the rear—a safety lug; along the sides—slots for movement of the bolt carrier along the receiver flanges; on the right side—a lug for release (rotation) of the auto sear lever and a handle for recharging the rifle; on the bottom—a shaped notch for housing the bolt guide lug and a slot for passage of the receiver's ejector lug. The gas piston is attached to the front portion of the bolt carrier.



**Figure 31. Bolt carrier with gas piston:**

- 1 - bolt channel
- 2 - safety lug
- 3 - auto sear lever tripping lug
- 4 - slot for receiver flange
- 5 - handle
- 6 - shaped recess
- 7 - slot for ejector lug
- 8 - gas piston



17. The **bolt** (Figure 32) delivers the cartridge into the chamber, closes the barrel bore, dents the primer, and extracts the case (cartridge) from the chamber.

The bolt consists of the body, firing pin, extractor with spring and pin, and firing pin retaining pin.

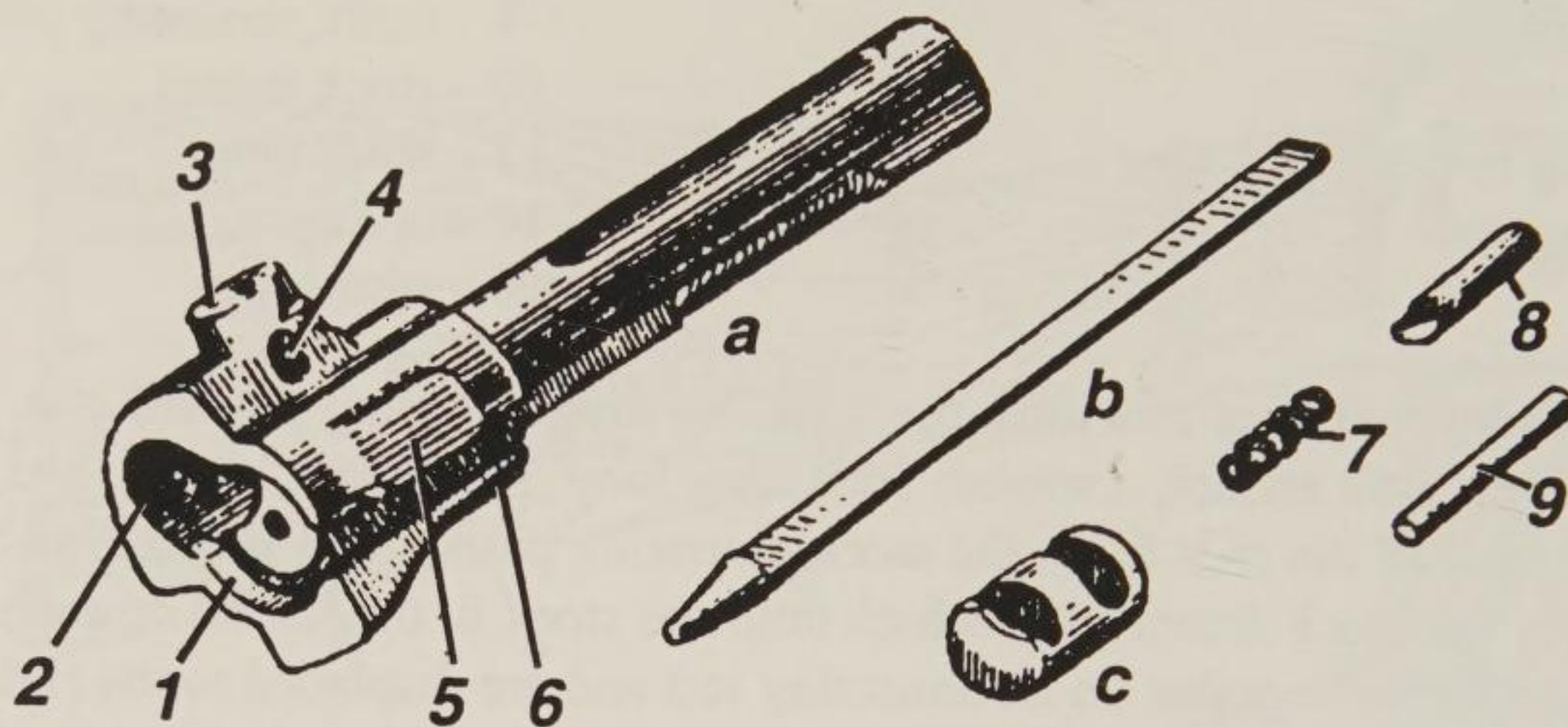


Figure 32. Bolt:

a - bolt body

b - firing pin

c - extractor

- 1 - recess for case bottom
- 3 - guide lug
- 5 - locking lug
- 7 - extractor spring
- 9 - firing pin retaining pin

- 2 - extractor slot
- 4 - hole for extractor pin
- 6 - longitudinal slot for ejector lug
- 8 - extractor pin

The **bolt body** has: on the front face—two cylindrical recesses for the case bottom and for the extractor; two locking lugs that engage in the receiver's locking recesses to lock the bolt; on top—a guide lug for rotating the bolt during locking and unlocking; on the left side—a longitudinal slot for passage of the receiver's ejector lug (the slot widens at the end to facilitate the bolt's rotation during locking); in the slimmer portion of the bolt body are holes for the extractor pin and firing pin retainer pin. The bolt has an interior channel for the firing pin.

The **firing pin** has a striker and a recess for the retaining pin.

The **extractor with spring** extracts the case from the chamber and holds it until it encounters the receiver's ejector lug. The extractor has a claw for capture of the case, a pocket for the spring, and a notch for the pin.

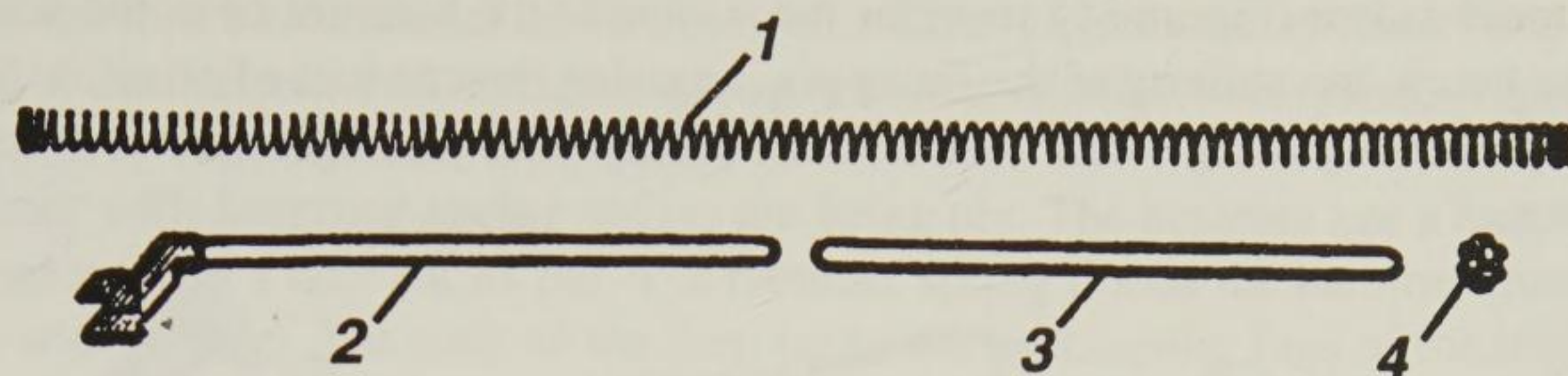
The **retaining pin** secures the firing pin and extractor pin.

18. The **recoil mechanism** (Figure 33) returns the bolt carrier with bolt to the forward position. It consists of the recoil spring, guide rod, movable rod, and collar.

The **guide rod** has a stop on the rear end for the spring, a heel with lugs for joining with the receiver, and a lug for holding the receiver cover.

The **movable rod** has flanges on the front end for installing the collar.

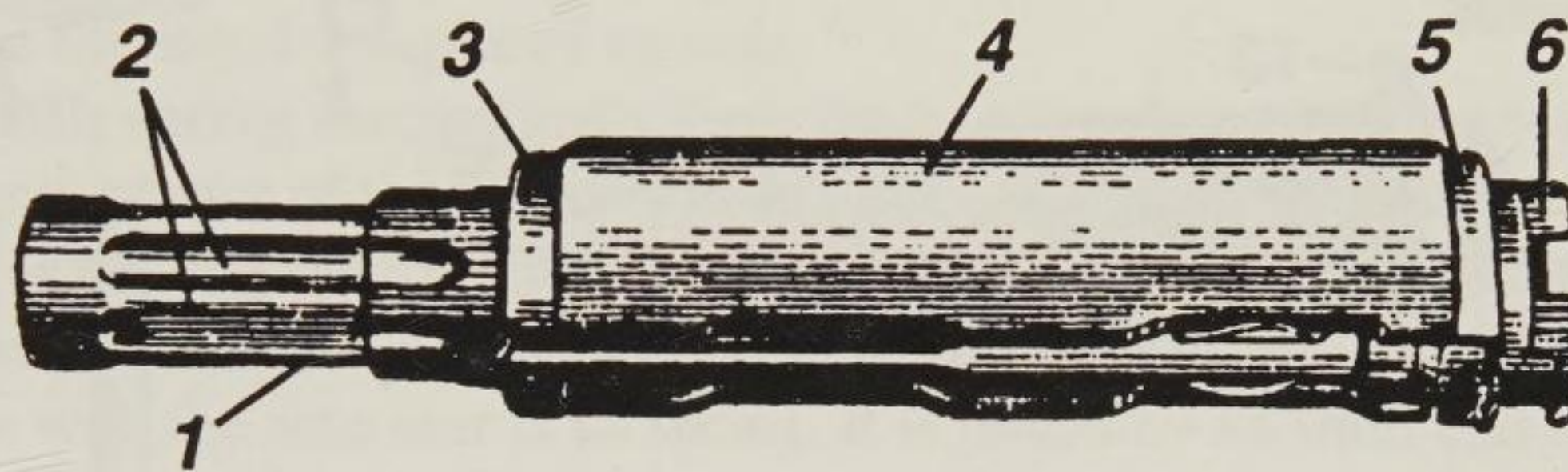




**Figure 33.** Recoil mechanism:

- |                       |               |
|-----------------------|---------------|
| 1 - recoil spring     | 2 - guide rod |
| 3 - movable guide rod | 4 - collar    |

**19.** The **gas tube with hand guard** (Figure 34) consists of the gas tube, front and rear joining collars, hand guard, and metallic semi-circular spacer



**Figure 34.** Gas tube with hand guard:

- |                          |                               |
|--------------------------|-------------------------------|
| 1 - gas tube             | 2 - guide ribs for gas piston |
| 3 - front joining collar | 4 - hand guard                |
| 5 - rear joining collar  | 6 - lug                       |

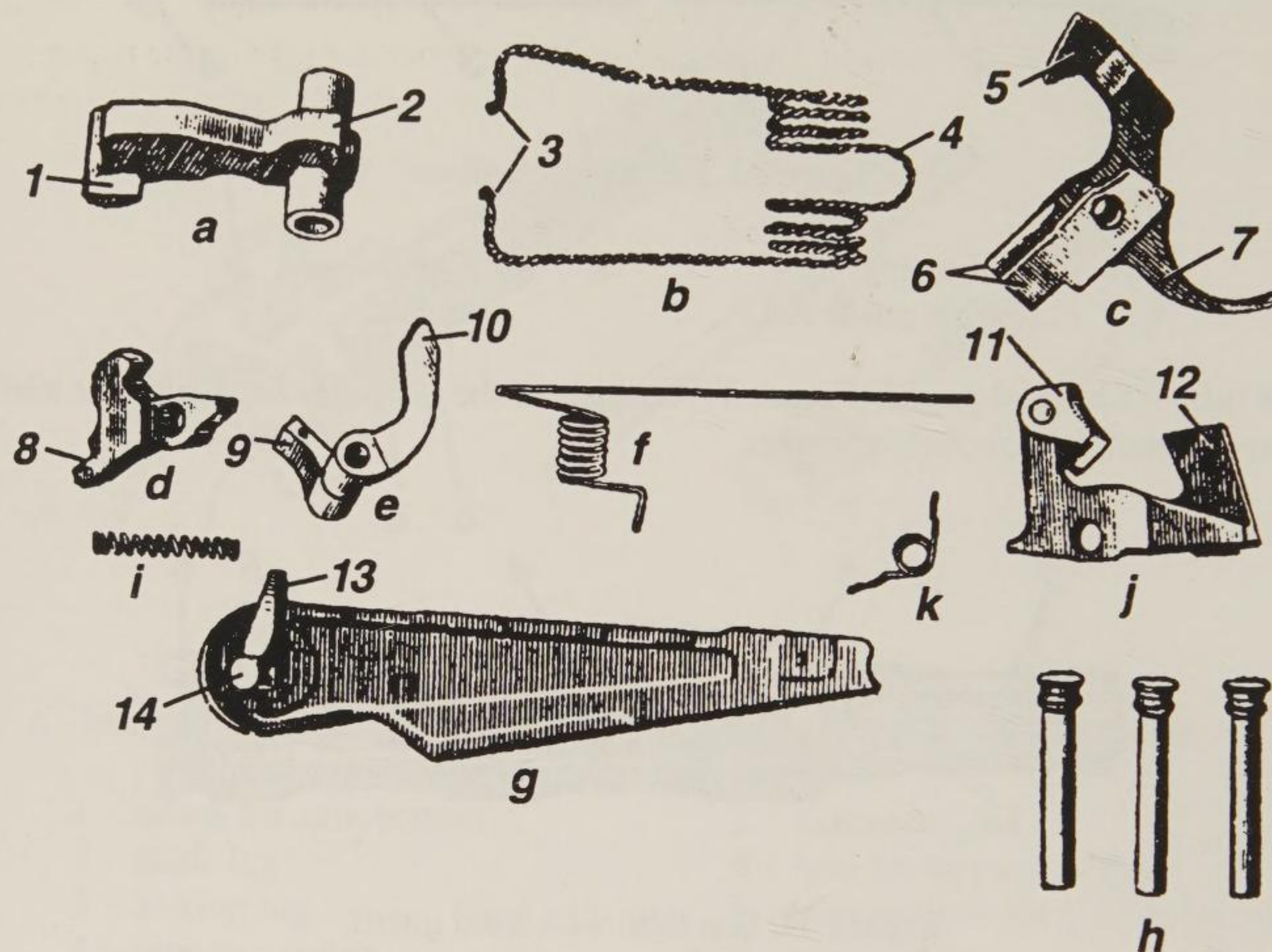
The **gas tube** directs the movement of the gas piston. It has guide ribs. The front end of the gas tube fits on the gas chamber.

The **hand guard** protects the rifleman's hands from burns when firing. It has a channel in which is secured the metal semi-circular spacer that presses the hand guard away from the gas tube (this prevents free play of the hand guard when the wood dries out).

The hand guard is secured on the gas tube by front and rear joining collars; the rear collar has a lug in which the gas tube lock engages.



20. The **firing mechanism** (Figure 35) provides for release of the hammer from the sear notch or from the auto sear notch, the striking of the firing pin, ensuring the conduct of semi- or full-automatic fire, ceasing fire, preventing firing when the bolt is not locked, and placing the rifle on safe.



**Figure 35.** Components of the trigger mechanism:

- |                                |                              |
|--------------------------------|------------------------------|
| a - hammer                     | b - hammer spring            |
| c - trigger                    | d - semi-automatic fire sear |
| e - auto sear                  | f - auto sear spring         |
| g - selector                   | h - pin                      |
| i - semi-automatic sear spring | j - hammer retarder          |
| k - hammer retarder spring     |                              |
| 1 - sear notch                 | 2 - auto sear notch          |
| 3 - bent ends                  | 4 - loop                     |
| 5 - shaped lug                 | 6 - rectangular lug          |
| 7 - tail                       | 8 - recess                   |
| 9 - sear                       | 10 - lever                   |
| 11 - latch                     | 12 - front lug               |
| 13 - sector                    | 14 - pin                     |



The trigger mechanism is housed in the receiver, where it is secured by three inter-changeable pins. It consists of the hammer with hammer spring, hammer retarder with spring, trigger, semi-automatic fire sear with spring, auto sear with spring, and selector.

The **hammer with hammer spring** strikes the firing pin. The hammer has a hammer spring, auto sear notch, trunnions, and a hole for its pin. The hammer spring fits on the hammer trunnions and acts on the hammer with its loop. The ends of the loop act on the rectangular lugs of the trigger.

The **hammer retarder** retards the hammer's forward movement in order to improve accuracy during the conduct of full-automatic fire. It has front and rear lugs, a hole for the pin, and a spring. The latch is secured to the rear lug with a pin.

The **trigger** holds the hammer on the sear notch [cocked] and releases the hammer. It has a shaped lug, a hole for its pin, rectangular lugs, and the tail or finger piece. It holds the hammer on the sear notch with its shaped lug.

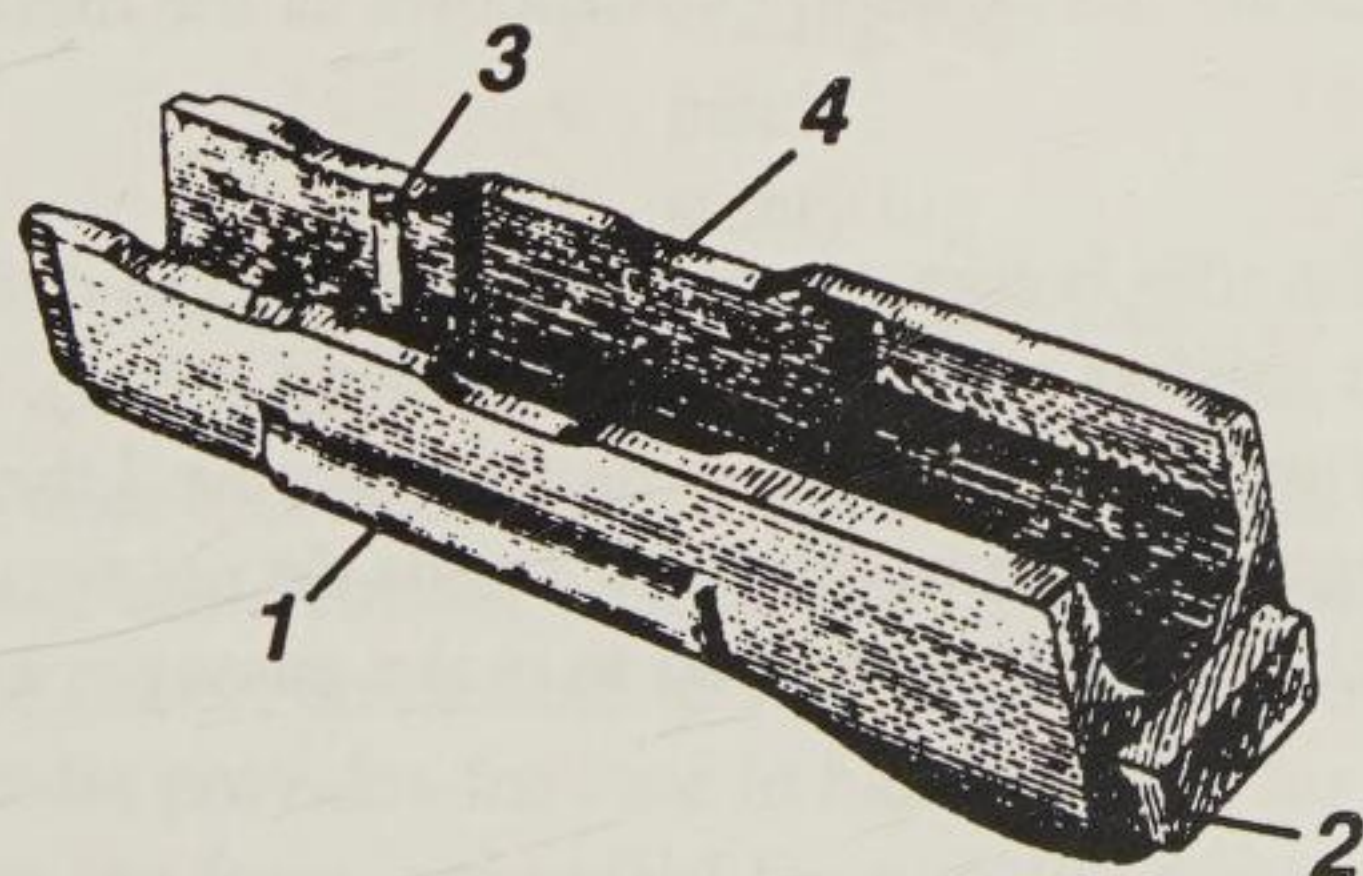
The **semi-automatic fire sear** holds the hammer in the extreme rear position after the shot if during the conduct of semi-automatic fire the trigger was not released. It is on the same pin with the trigger. The semi-automatic fire sear has a spring, a pin hole, and a notch into which the selector sector fits during the conduct of full-automatic fire and stops the sear. In addition, this notch limits the sector's forward rotation when the selector is placed on safe.

The **auto sear with spring** automatically frees the hammer from the auto sear notch during burst firing, and also prevents release of the hammer when the bolt is not locked and the barrel bore is not closed. It has a sear for holding the hammer on the auto sear notch, a lever for rotating the auto sear by the lug of the bolt carrier during its approach to the forward position, and a spring.

On the same pin with the auto sear is its spring. It is joined by its short end with the auto sear, and its long end passes along the left wall of the receiver and fits in the circular recesses on the pins of the auto sear, hammer, and trigger, holding the pins from falling out.

The **selector** is used to place the rifle on automatic or semi-automatic fire or on safe. It has a sector with pins that fit in holes of the receiver wall. The lower position of the selector places it on semi-automatic fire (O A), the middle position on automatic fire (AB), and the upper position on safe.

21. The **fore end** (Figure 36) provides ease of handling and protects the rifleman's hand from burns. It is secured to the barrel from the bottom by the joining collars and to the receiver by a lug that fits in a well on the receiver. The channel of the fore end has a metallic gasket that rests against the barrel, and rests along the sides for the fingers. The recesses in the fore end and hand guard form a window for cooling the barrel and gas tube during firing.



**Figure 36.**

Fore end:

- 1 - rest for fingers
- 2 - lug
- 3 - metal gasket
- 4 - recesses



22. The **magazine** (Figure 37) holds the cartridges and delivers them into the receiver. It consists of a body, floor plate, stop leaf, spring, and follower.

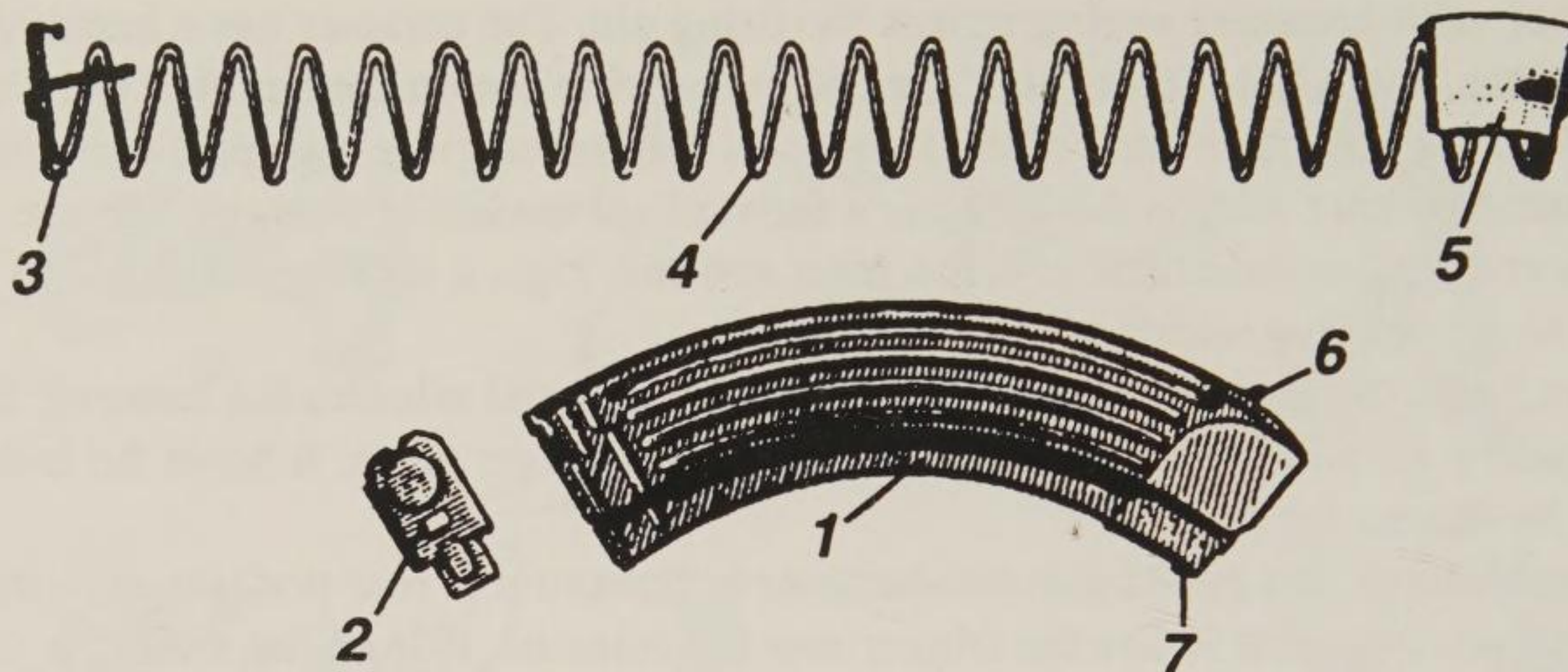


Figure 37. Magazine:

- |               |                 |
|---------------|-----------------|
| 1 - body      | 2 - floor plate |
| 3 - stop leaf | 4 - spring      |
| 5 - follower  | 6 - stop lug    |
| 7 - catch     |                 |

The magazine body joins all of the magazine's components together. Its lateral walls have lips to prevent the cartridges from falling out and lugs that limit the upward motion of the follower. On the front wall is a catch and on the rear wall is a stop lug, which together hold the magazine in the receiver. On the bottom of the rear wall of the magazine's body is an inspection hole for determining if the magazine is fully loaded. The walls of the magazine are ribbed for strength.

The bottom of the magazine is closed with a floor plate. The floor plate has a hole for the lug of the stop leaf.

Inside the magazine body are a follower and spring with stop leaf. The follower is fastened to the upper end of the spring by an internal flange on the right wall of the follower. The follower has a lug that ensures the staggered positioning of the cartridges in the magazine. The stop leaf is permanently attached to the bottom end of the follower spring and holds the magazine floor plate from displacement with its lug. Some rifles have plastic magazines that are the same in construction as the metallic magazines.

23. The **bayonet-knife** (Figure 38) is affixed to the rifle before an attack and is used to defeat the enemy in hand-to-hand combat. At other times it is used as a knife, saw (for sawing metal), and cutters (for cutting wire). Lighting system wires must be cut one at a time, having first removed the bayonet-knife and its scabbard from your belt. When cutting wire, ensure that your hands do not touch the metallic surfaces of the bayonet-knife and scabbard. **It is not permitted** to make passages in electrified wire obstacles with the bayonet-knife.



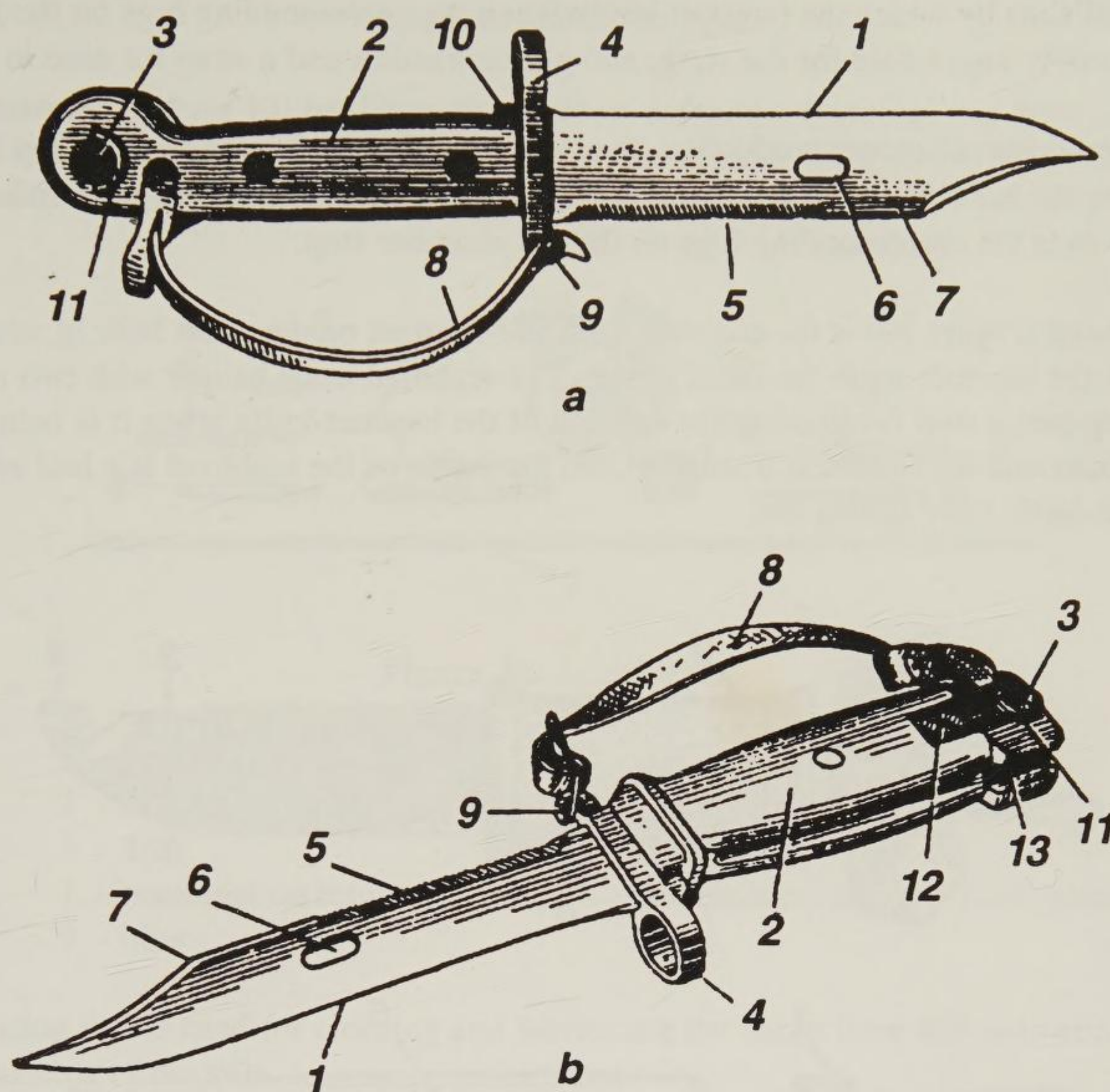


Figure 38. Bayonet-knife

a - old type

b - new type

1 - blade

2 - handle

3 - latch

4 - ring

5 - saw

6 - hole

7 - cutting edge

8 - strap

9 - catch

10 - lug

11 - safety lug

12 - mounting screw

13 - longitudinal slot

The bayonet-knife consists of a blade and handle.

The **blade** has a cutting edge; a saw; a cutting edge which in combination with the scabbard is used as a wire cutter; and a hole in which the lug pin of the scabbard fits.

The **handle** provides for ease in handling and for mounting the bayonet-knife on the rifle. The handle has: on the front—a ring that fits over the compensator or on the barrel sleeve; a lug by which the bayonet-knife enters a corresponding slot on the front sight base stop; a catch for the strap; on the



rear-longitudinal slots by which the bayonet-knife fits on the corresponding lugs on the gas chamber stop; a latch; a safety lug; a hole for the strap; and plastic handles and a strap for ease in handling the bayonet-knife.

On bayonet-knives of recent production, the plastic handles have been replaced by a plastic body that is secured to the handle by a metallic end cap with a mounting screw. The end cap has longitudinal slots that fit over the corresponding lugs on the gas chamber stop.

**24. The scabbard** (Figure 39) is for carrying the knife-bayonet on the waist belt. In addition, it is used along with the bayonet-knife for cutting wire. The scabbard has a hanger with two metal clips and a strap, a lug-pin, a stop for limiting the rotation of the bayonet-knife when it is being used as a cutter, and a rubber end for electrical insulation. On the inside of the scabbard is a leaf spring to prevent the bayonet-knife from falling out.

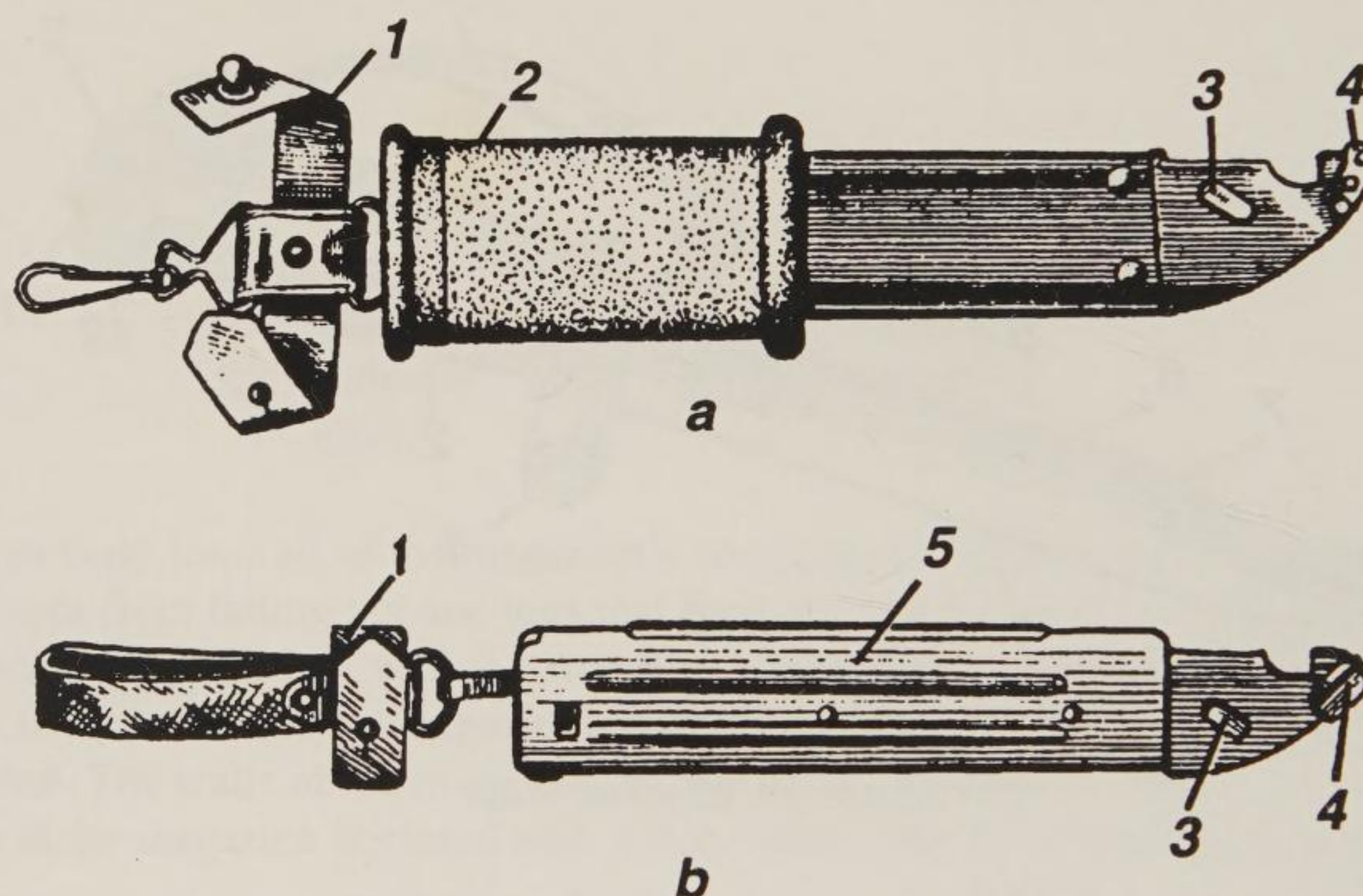


Figure 39. Scabbard:

a - old type

b - new type

1 - hanger with snaps

2 - rubber end

3 - lug-pin

4 - stop

5 - plastic body

At the present time plastic scabbards are being manufactured without the rubber end, because plastic is in itself an electrical insulator. In addition, the upper clip on the hanger is being replaced with a loop for wear on the waist belt.



### Accessories for the rifle

25. The **accessories** (Figure 40) facilitate disassembly, assembly, cleaning, and lubrication of the rifle. Included in the accessories are: the cleaning rod, jag, bristle brush, screwdriver blade, drift, tapered pin or dowel, combination tool, and oiler.

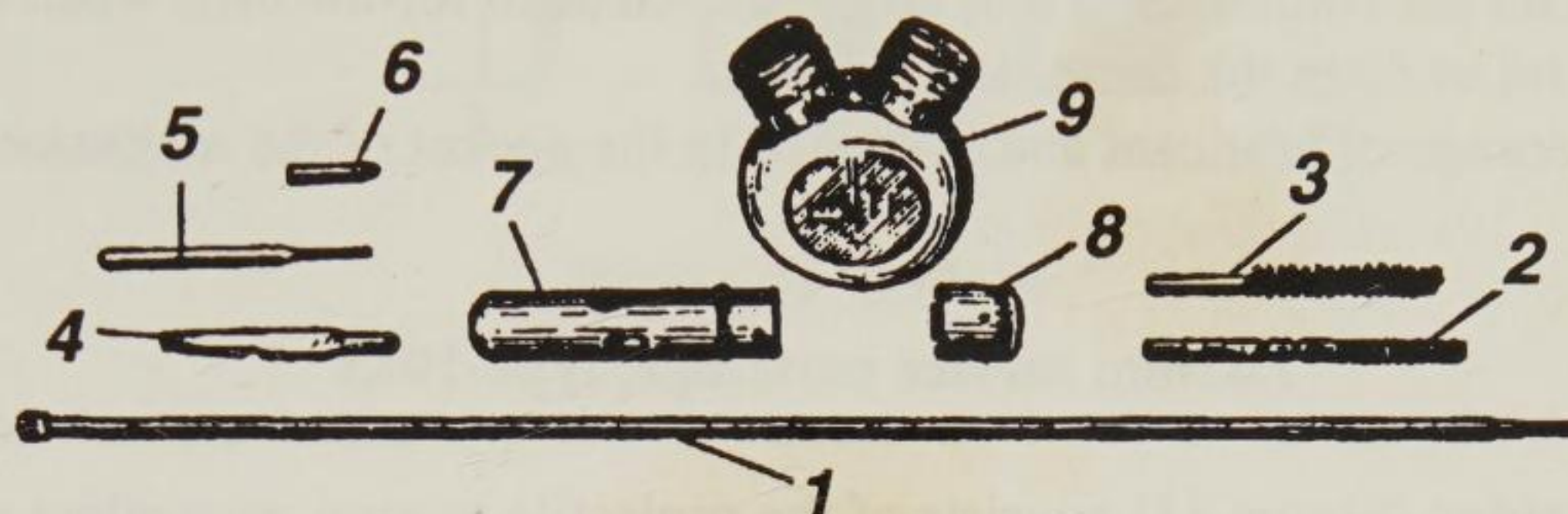


Figure 40. Accessories:

- |                      |                                       |
|----------------------|---------------------------------------|
| 1 - cleaning rod     | 2 - jag                               |
| 3 - bristle brush    | 4 - screwdriver blade                 |
| 5 - drift            | 6 - tapered pin                       |
| 7 - combination tool | 8 - combination tool cap [bore guide] |
| 9 - oiler            |                                       |

The **cleaning rod** is used for cleaning and lubricating the barrel bore and channels and cavities of other components of the rifle.

The cleaning rod has a head with hole into which fits the drift, a threaded end for screwing on the jag or bore brush, and a slot for a patch or oakum strip.

The cleaning rod is joined to the rifle under the barrel.

The **jag** is used for cleaning and lubricating the barrel bore, and also the channels and cavities of other components of the rifle.

The **bristle brush** is used for cleaning the barrel bore with a solution of rifle cleaning solution.

The **screwdriver blade, drift, and tapered pin** are used for disassembly and assembly of the rifle. The slot on the end of the screwdriver blade is intended for screwing the front sight in and out, and the lateral notch for securing the jag on the cleaning rod. The screwdriver blade is inserted in a lateral opening of the combination tool for ease of use. When cleaning the barrel bore, insert the screwdriver blade in the combination tool above the head of the cleaning rod. The tapered pin is used during assembly of the trigger mechanism. It holds the semi-automatic fire sear and hammer retarder with spring on the trigger.

The **combination tool** is used for storage of the jag, bristle brush, screwdriver blade, drift, and tapered pin. It is closed by a cover.

The combination tool is used as a cleaning rod handle during cleaning and lubrication of the barrel bore, as a handle for the screwdriver blade when screwing the front sight post in and out, and for rotating the gas tube lock.



The combination tool has through holes in which the cleaning rod is inserted when cleaning the rifle, oval holes for the screwdriver blade, and a right-angled hole for rotating the gas tube lock during disassembly and assembly of the rifle.

The cover is used as a muzzle cap [bore guide] when cleaning the barrel bore. It has a hole for guiding the movement of the cleaning rod, and internal lugs and slots for securing to the compensator or barrel sleeve.

The lateral holes on the combination tool cover are intended for the drift when used for removing the cover from the barrel or from the combination tool.

The **oiler** is for storage of lubricant and is carried in the pocket of the magazine pouch.

### 7.62mm service cartridge, type-1943

26. The **service cartridge** (Figure 41) consists of the projectile, casing, propellant charge, and primer.

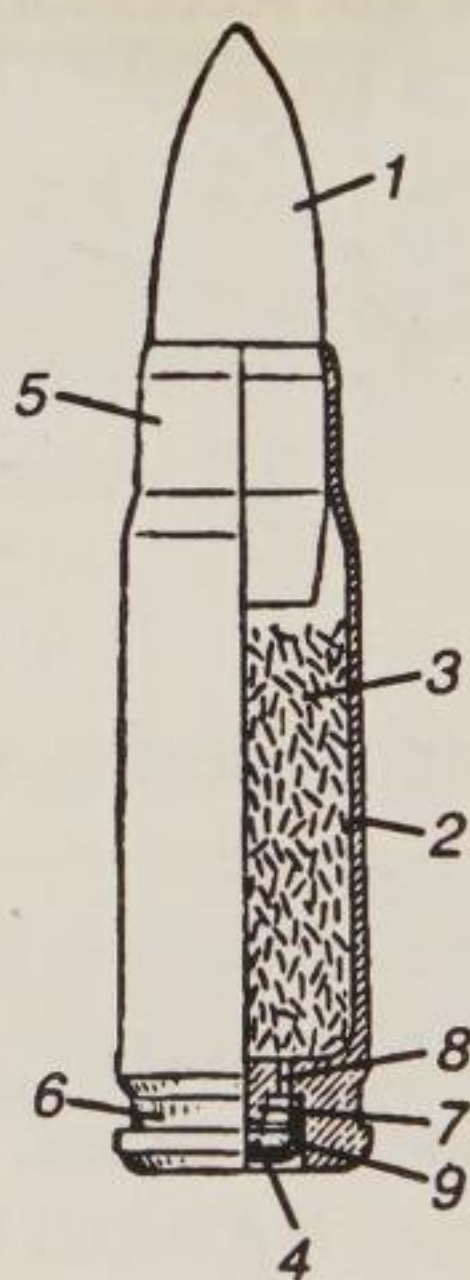
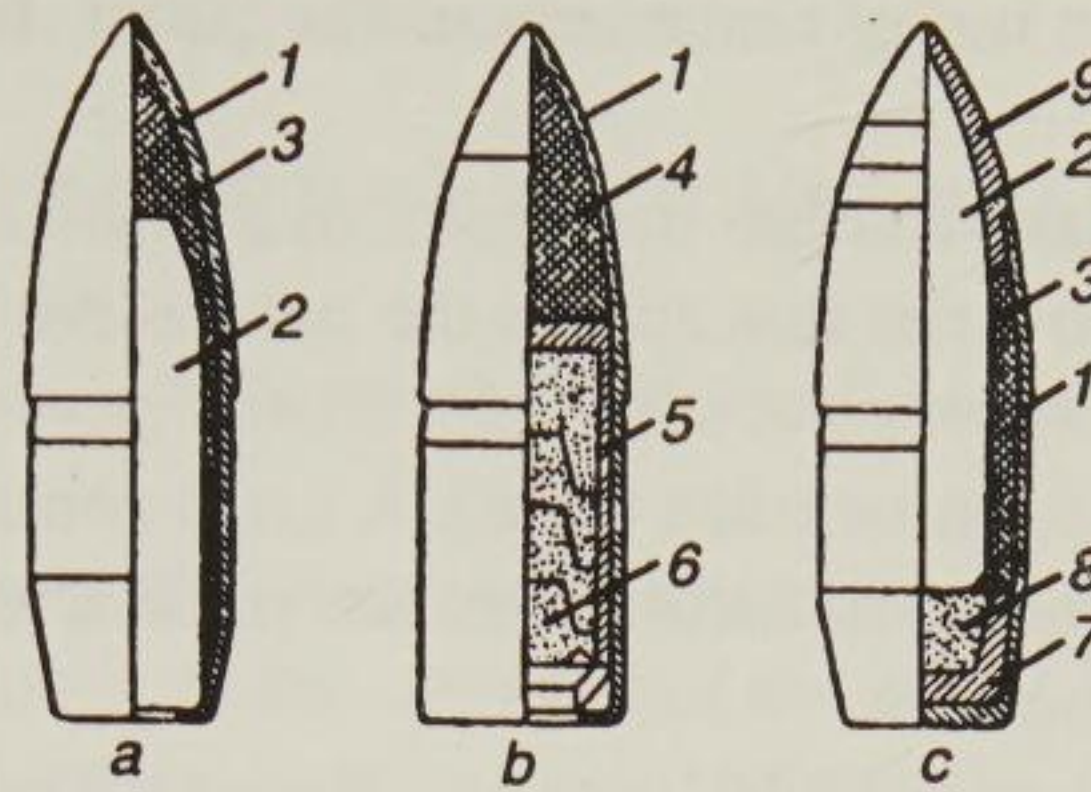


Figure 41. Service cartridge:

- |                       |                     |
|-----------------------|---------------------|
| 1 - projectile        | 2 - casing          |
| 3 - propellant charge | 4 - primer          |
| 5 - case mouth        | 6 - circular groove |
| 7 - anvil             | 8 - flash hole      |
| 9 - percussion charge |                     |

27. The **type-1943 cartridge** is issued with conventional bullets and with special-purpose bullets: tracer and armor-piercing incendiary. The tips of the special bullets have distinguishing paint.





**Figure 42. Bullets:**

a - conventional with steel core

b - tracer

c - armor-piercing incendiary

1 - jacket

3 - lead lining

5 - cup

7 - lead pan

9 - nose cap

2 - steel core

4 - core (lead)

6 - tracer substance

8 - incendiary substance

The **conventional bullet** (Figure 42a) is intended to defeat enemy personnel who are displaced in the open or behind camouflage that the bullet can penetrate.

The conventional bullet consists of a steel core covered by a copper and zinc alloy jacket. Between the jacket and the core is a lead lining.

The **tracer bullet** (Figure 42b) is intended for defeat of enemy personnel. In addition, it leaves a bright track during flight in the air out to a range of 800 meters, which permits the adjustment of fire or target designation.

The front portion of the tracer bullet contains the core, and the bottom portion a cup with compressed tracer substance. During the firing of this bullet, the flame from the propellant charge ignites the tracer substance, which emits a bright colored track during the bullet's flight, highly visible during both day and night. The nose portion of this bullet is painted green.

The **armor-piercing incendiary bullet** (Figure 42c) is intended for igniting flammable substances and defeating enemy personnel under light armor protection at ranges up to 300 meters.

The armor-piercing incendiary bullet consists of a jacket with a copper-zinc nose cap, steel core with lead liner, lead pan, and incendiary substance. When the bullet strikes against armor, the incendiary substance ignites and the flame passes through the hole created by the steel core, igniting the flammable substance.

The nose portion of this bullet is painted black with a red stripe.

**28.** The **case** joins together all the components of the cartridge, protects the propellant charge against external influences, and prevents escape of propellant gases around the bolt. It has a body for holding the propellant charge, a mouth for securing the bullet, and a bottom. Around the base of the cartridge rim is a circular groove for the extractor claw. In the cartridge bottom is a pocket for the primer, an anvil, and two flash holes.



29. The **propellant charge** imparts initial movement to the bullet. It consists of a pyroxylin charge.
30. The **primer** ignites the propellant charge. It consists of a brass mantle, a percussive substance pressed into the mantle, and a foil coverlet that covers the percussive substance.
31. Type-1943 cartridges are packed in wooden crates. A crate contains two hermetically sealed metal boxes of 660 rounds each. The cartridges in these boxes are packed in cardboard cartons of 20 cartridges each. A crate contains 1320 rounds.

The sides of crates containing special bullets are marked with colored stripes that correspond to the coloring of the nose portions of the bullets.



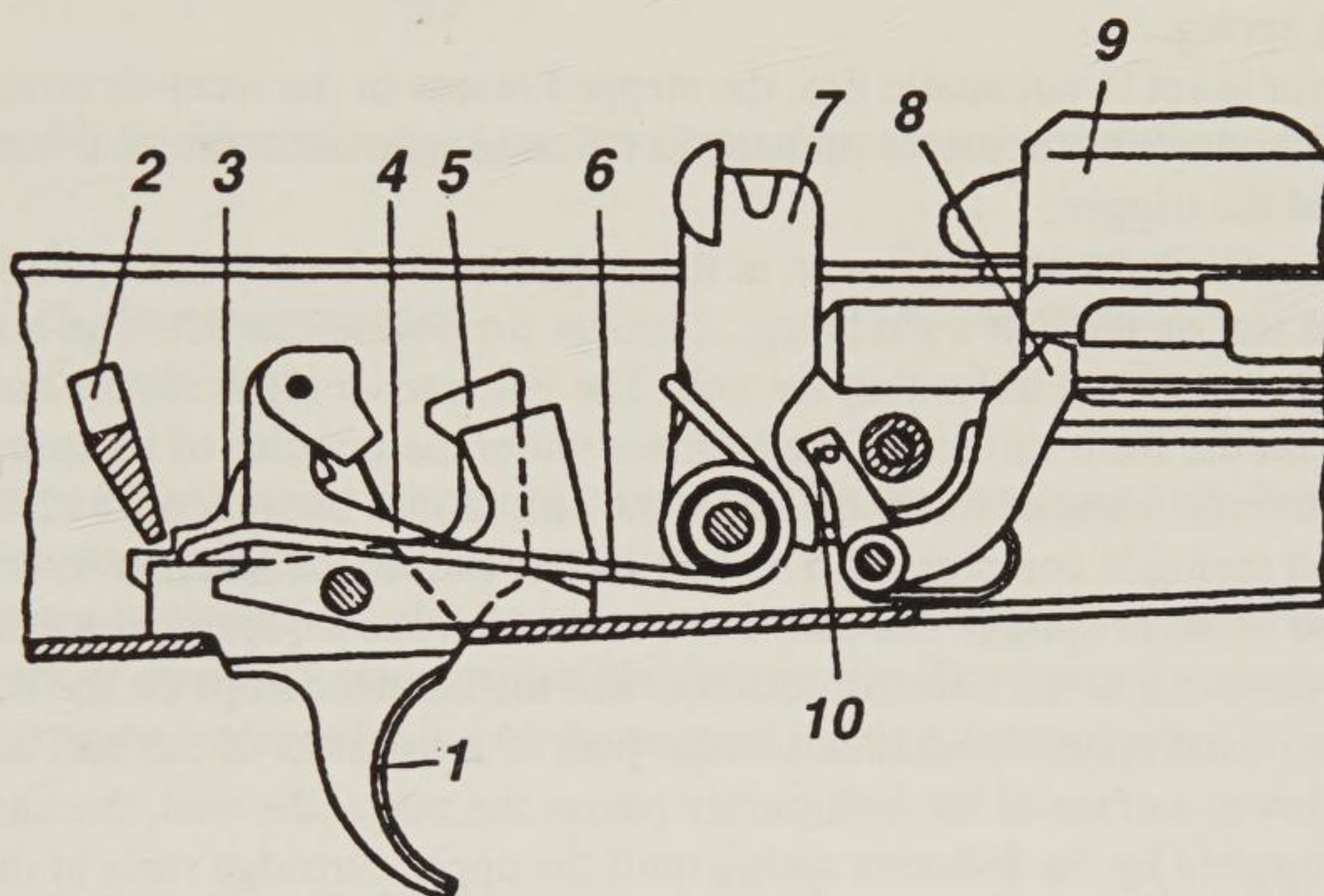
## Chapter IV

## FUNCTION OF THE RIFLE'S COMPONENTS AND MECHANISMS

## Position of components and mechanisms before loading

32. The bolt carrier with gas piston and bolt are in the extreme forward position under the impulse of the recoil mechanism. The gas piston is in the cylinder of the gas chamber. The bolt is closing the barrel bore. The bolt is rotated around its longitudinal axis to the right, its locking lugs engaged in the receiver's notches. The bolt is locked. The recoil spring is under least pressure.

The auto sear lever is rotated forward and downward under the impulse of the bolt carrier lug (Figure 43).



**Figure 43.** Position of the trigger mechanisms before loading, with the selector on safe and the hammer released:

- |                              |                     |
|------------------------------|---------------------|
| 1 - trigger                  | 2 - selector sector |
| 3 - semi-automatic fire sear | 4 - hammer retarder |
| 5 - shaped lug of trigger    | 6 - hammer spring   |
| 7 - hammer                   | 8 - auto sear lever |
| 9 - bolt carrier             | 10 - auto sear      |

The hammer is released and touching the bolt. The firing pin has been driven forward by the action of the hammer. The hammer spring is under least compression. It is pressing the hammer toward the bolt with its loop, and pressing the rectangular lugs of the trigger bar toward the bottom of the receiver with its bent ends. The tail [finger piece] of the trigger is in the forward position.

The hammer retarder, under the impulse of its spring on its front lug, is pressed toward the bottom of the receiver.



The selector is in the extreme upper position and closes the stepped recess in the receiver cover (the selector is placed on safe). The sector of the selector has entered into a notch of the semi-automatic fire sear and is above the rightmost rectangular lug of the trigger (it is locking the trigger).

### **Function of components and mechanisms during loading**

**33.** To load the rifle, first insert a loaded magazine, place the selector on automatic fire (**AB**), draw the bolt carrier to the rear to stop, and release it. The rifle is loaded. If one does not intend immediately to commence firing, the selector should be placed on safe.

When inserting a magazine in the rifle, its catch engages the receiver lug, the stop lug engages the magazine latch, and the magazine is secured in the receiver well. The uppermost cartridge, in contact with the bottom of the bolt carrier, pushes down slightly on the other cartridges in the magazine, compressing the follower spring.

When the selector is set to automatic fire, the stepped recess in the receiver cover for the bolt carrier handle is freed, and the selector sector remains in the semi-automatic fire sear notch, but does not prevent the rotation of the trigger.

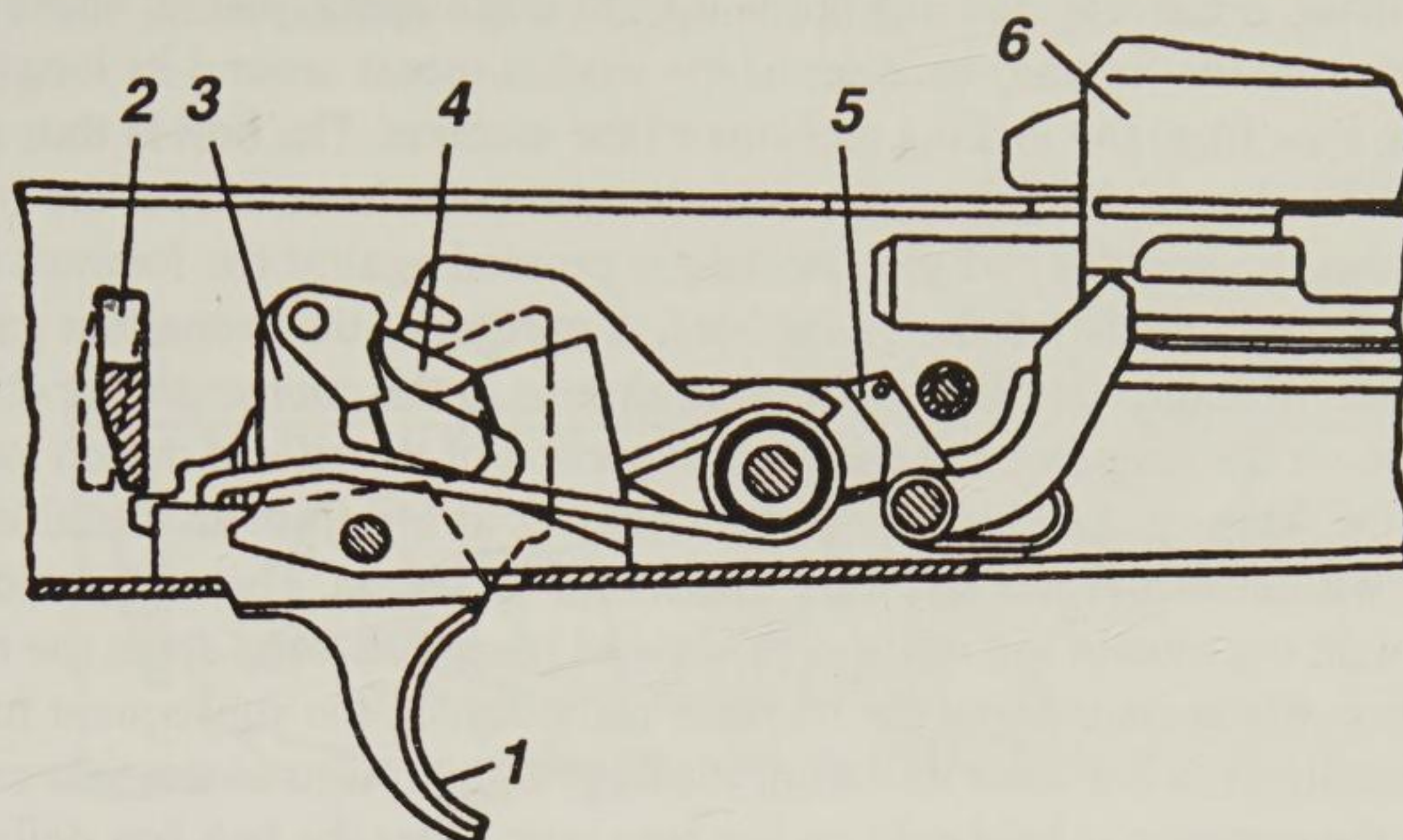
When the bolt carrier is drawn to the rear, at the end of its slack movement, acting by the front chamfer of its shaped slot on the bolt's guide lug, it rotates the bolt to the left. The bolt's locking lugs come out of the receiver recesses, unlocking the bolt. The bolt carrier lug frees the auto sear lever, and the auto sear presses on the front surface of the hammer under the impulse of its spring.

With subsequent withdrawal of the bolt carrier, the bolt moves back along with it, opening the barrel bore. The recoil spring is compressed. The bolt carrier causes the hammer to rotate on its pin, placing tension on the hammer spring. The hammer's sear notch subsequently engages the shaped lug of the trigger, under the catch of the hammer retarder, and the hammer stops on the auto sear notch. The auto sear lever is raised upward and stands in the path of movement of the bolt carrier lug.

As soon as the lower surface of the bolt carrier passes the magazine well, the cartridges in the magazine are raised upward by the follower spring until the upper cartridge rests in the lip of the magazine wall.

When the bolt carrier is released, it is delivered forward together with the bolt by the impulse of the recoil mechanism. The bolt strips the topmost cartridge from the magazine, delivers it into the chamber, and closes the barrel bore. When the bolt approaches the breech face of the barrel the extractor claw engages the circular rim of the case. The chamfer of the left recess of the receiver on the chamfer of the left bolt locking lug, and then the action of the shaped recess of the bolt carrier on the bolt guide lug together rotate the bolt to the right around its longitudinal axis. The bolt's locking lugs engage in the receiver's locking recesses and the bolt is locked. Continuing its extreme forward movement, the bolt carrier lug rotates the auto sear lever forward and downward, driving the auto sear out of its sear notch on the hammer. The hammer rotates under the impulse of the hammer spring, is released from the retarder catch, and is cocked (Figure 44).





**Figure 44.** Position of trigger mechanism components before the shot is fired:

- |                     |                     |
|---------------------|---------------------|
| 1 - trigger         | 2 - selector sector |
| 3 - hammer retarder | 4 - hammer          |
| 5 - auto sear       | 6 - bolt carrier    |

The cartridges in the magazine are raised upward under the impulse of the follower spring until the topmost cartridge stops against the bolt carrier.

When the selector is placed on safe, the selector closes the stepped recess of the receiver cover and stands in the path of rearward movement of the bolt carrier. The selector sector rotates forward and stands above the rightmost rectangular lug of the trigger (locking the trigger).

### Function of components and mechanisms during firing

#### Function of components and mechanisms during automatic firing

**34.** To conduct automatic firing, place the selector on automatic fire (**AB**) (if it was not done so upon loading) and squeeze the trigger.

When the selector is placed on automatic fire, the selector sector frees the rectangular lug of the trigger (unlocking the trigger) and stops in the notch of the semi-automatic fire sear. The trigger can now rotate on its pin. The selector sector now is holding the semi-automatic fire sear from rotation together with the trigger.

When the trigger is squeezed, its shaped lug disengages from the hammer sear notch. Under the impulse of the hammer spring, the hammer rotates on its pin and energetically strikes the firing pin. The firing pin striker dents the primer, igniting its percussive component. The resulting flame penetrates through the two flash holes in the cartridge base toward the propellant charge and ignites it. The shot is fired.

The bullet moves through the barrel bore pushed by the propellant gases. As soon as it passes the gas port, a portion of the gases rushes through this hole into the gas chamber, presses on the gas piston,



and drives the bolt carrier to the rear. Moving rearward, the bolt carrier (just as when it was pulled back by hand) rotates the bolt by the forward chamfer of the shaped recess around its longitudinal axis and disengages its locking lugs from the locking recesses of the receiver. The bolt is thus unlocked and the barrel bore is opened. The lug of the bolt carrier frees the auto sear lever. Under the impulse of its spring, this lever is raised up slightly and the auto sear is pressed against the forward surface of the hammer. By this time the bullet has left the barrel bore. A portion of the propellant gases following behind the bullet collide with the shoulder of the compensator in the compensating chamber. This creates excessive pressure on the shoulder and the muzzle portion of the rifle is driven to the left and downward, reducing the dispersion of bullets during automatic firing from an unstable position.

The bolt carrier with bolt continue rearward movement on inertia. The case, held by the extractor claw, makes contact with the ejector lug of the receiver and is ejected away from the rifle.

With the exception of the function of the hammer and retarder, the subsequent function of the components and mechanisms is the same as during loading. Upon return of the bolt carrier with bolt to the forward position, the hammer is held only on the auto sear. After the bolt has delivered the uppermost cartridge from the magazine into the receiver, closed the barrel bore, and locked the bolt, the bolt carrier continues its forward movement. The auto sear is disengaged from the auto sear notch of the hammer. Under the impulse of the hammer spring, the hammer rotates and strikes the latch of the hammer retarder. The retarder rotates to the rear, subjecting its forward lug to the hammer's strike. As a result of these strikes on the retarder, the hammer's forward movement is slightly delayed. This delay permits the barrel, which has just been struck by the bolt carrier with bolt, to assume a position closer to the position it started in, which improves the rifle's accuracy. After striking the front lug of the retarder, the hammer strikes the firing pin, producing the shot. The function of the rifle's components and mechanisms is repeated. Automatic firing will continue as long as the trigger is squeezed and there are cartridges in the magazine.

**To cease firing** release the trigger. Under the impulse of the hammer spring, the trigger rotates and its shaped lug stands in the path of movement of the hammer's sear notch. The hammer stops on the sear notch. Firing ceases, but the rifle is loaded, prepared to resume automatic firing.

#### Function of components and mechanisms during semi-automatic firing

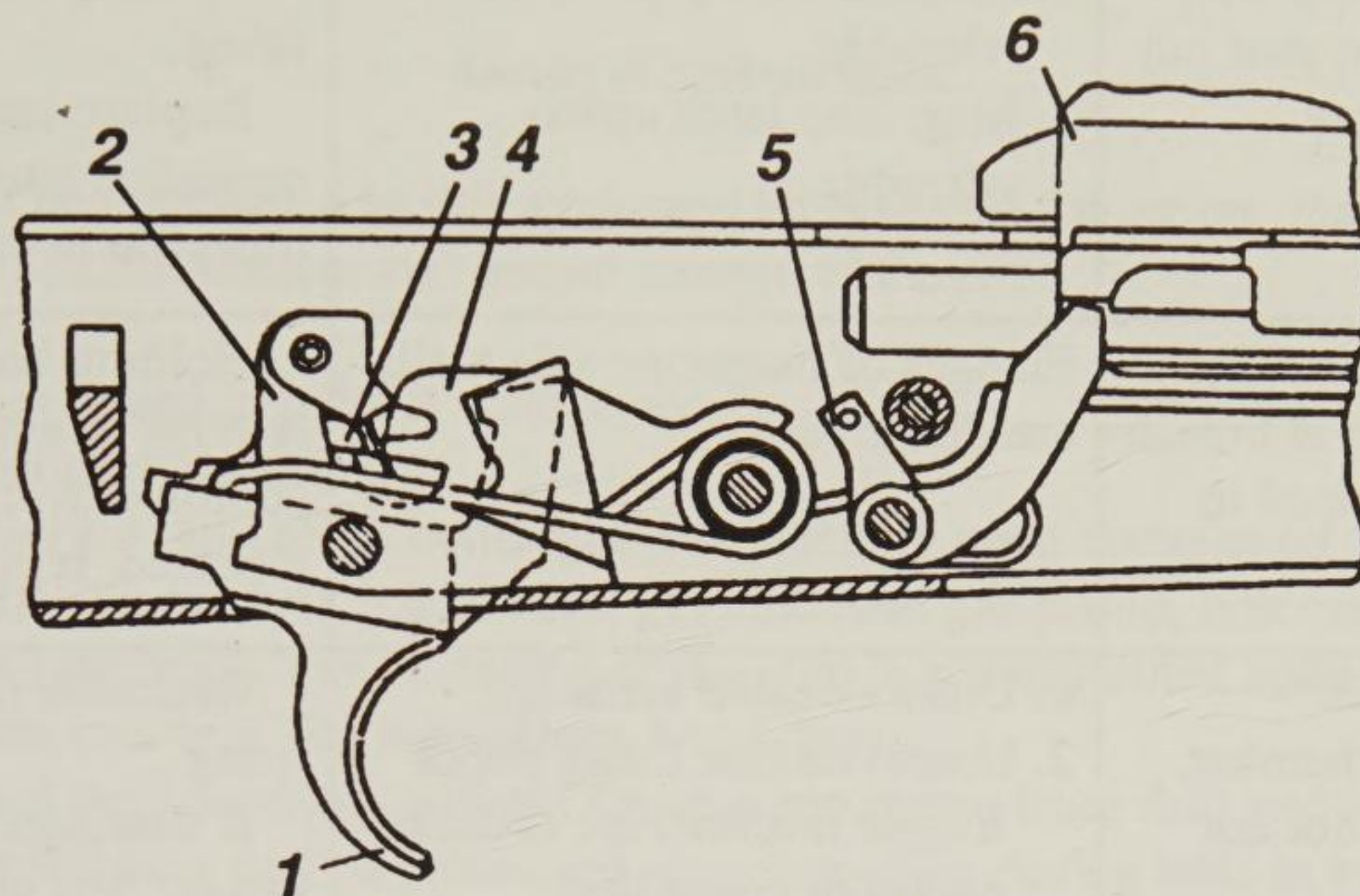
**35.** To fire semi-automatic fire, place the selector on semi-automatic fire (**OA**) and squeeze the trigger.

When the selector is moved from the safe position to the semi-automatic fire position (**OA**), the selector sector frees the rectangular lug of the trigger (unlocking the trigger). The sector completely disengages from the notch of the semi-automatic fire sear and does not participate in the function of the trigger mechanism during firing.

When the trigger is squeezed, its shaped lug disengages from the hammer's sear notch. Under the impulse of the hammer spring, the hammer rotates on its pin and energetically strikes the firing pin. The shot is fired. After the first shot, the components and mechanisms accomplish the same functions as occurred during automatic firing. But the subsequent shot is not fired, because the semi-automatic fire sear rotated forward together with the trigger and its catch stood in the path of movement of the hammer's sear notch.



The hammer's sear notch catches the semi-automatic fire sear and the hammer stops in the rear position (Figure 45).



**Figure 45.** Position of the components of the trigger mechanism after the shot with the selector placed on semi-automatic fire:

- |                              |                     |
|------------------------------|---------------------|
| 1 - trigger                  | 2 - hammer retarder |
| 3 - semi-automatic fire sear | 4 - hammer          |
| 5 - auto sear                | 6 - bolt carrier    |

To produce the subsequent shot, release the trigger and squeeze it again. When the trigger is released, it rotates under the impulse of the hammer spring together with the semi-automatic fire sear. The semi-automatic fire sear disengages from the hammer's sear notch and frees the hammer. The hammer rotates under the impulse of the hammer spring, first strikes the retarder catch and then its forward lug, and then stops on the sear notch. When the trigger is squeezed, its shaped lug disengages from the hammer's sear notch and the function of the components and mechanisms is repeated. The next shot is fired.

### Stoppages when firing with the rifle and methods of correcting them

**36.** With proper handling of the rifle and its accessories, the rifle's components and mechanisms will function reliably and without stoppage for a long period of time. However, as a result of contamination of the mechanisms, wear of components, and careless handling, and also the use of unserviceable cartridges, stoppages may occur during firing.

**37.** One should attempt to clear stoppages that occur during firing by recharging the rifle. This is accomplished by drawing the bolt carrier rearward to stop by its handle, releasing it, and continuing to fire. If the stoppage is not corrected, it is necessary to ascertain the cause of the stoppage and relieve it as indicated in the following chart:



Stoppages and their characteristics	Cause of stoppage	Corrective Action
<b>Cartridge not delivered.</b> Bolt in forward position, but shot not fired—chamber is empty.	<ol style="list-style-type: none"> <li>1. Magazine dirty or unserviceable.</li> <li>2. Magazine latch unserviceable.</li> </ol>	<p>Recharge rifle and continue firing.</p> <p>Replace magazine. If magazine latch unserviceable, turn rifle in to repair facility.</p>
<b>Jammed cartridge.</b> Cartridge with projectile jammed at breech face, moving parts stopped in forward position.	Flanges of magazine side walls are distorted.	Holding bolt carrier handle, remove jammed cartridge and continue firing. If stoppage is repeated, replace magazine.
<b>Misfire.</b> Bolt in forward position, cartridge in chamber, hammer released but shot not fired.	<ol style="list-style-type: none"> <li>1. Unserviceable cartridge.</li> <li>2. Unserviceable firing pin or trigger mechanism; contamination or congealed lubricant</li> </ol>	<p>Recharge rifle and continue firing.</p> <p>If stoppage is repeated, inspect and clean firing pin and trigger mechanism; if they are broken or worn, turn rifle in to repair facility.</p>
<b>Failure to extract.</b> Case in chamber, nose of subsequent cartridge jammed against it, moving components stopped in forward position	<ol style="list-style-type: none"> <li>1. Dirty cartridge or contaminated chamber.</li> <li>2. Contaminated or unserviceable extractor or extractor spring.</li> </ol>	<p>Draw bolt carrier handle to rear and, holding it in rearward position, remove magazine and extract jammed cartridge. Extract case from chamber with bolt or cleaning rod. Continue firing. If stoppage is repeated, clean chamber and cartridges. Inspect and clean extractor of dirt and continue firing. If extractor is unserviceable, turn rifle in to repair facility.</p>
<b>Failure to eject.</b> Case not ejected from receiver, remained in receiver in front of bolt or was delivered back into chamber by bolt	<ol style="list-style-type: none"> <li>1. Contamination of working parts, gas system, or chamber.</li> <li>2. Contaminated or unserviceable extractor.</li> </ol>	<p>Draw bolt carrier handle to rear, eject case, and continue firing.</p> <p>If stoppage is repeated, clean gas system, working parts, and chamber. Lubricate working parts. If extractor is unserviceable, turn rifle in to repair facility.</p>



## Chapter V

## MAINTENANCE, STORAGE, AND PRESERVATION OF THE RIFLE

## General instructions

38. The rifle should be maintained in full repair and be prepared for action. This is achieved by timely and skillful cleaning and lubrication, and proper storage of the rifle.
39. Cleaning of rifles issued to units is conducted:
- during preparation for firing;
  - after firing service and blank cartridges—immediately upon completion of firing at the range (in the field). The receiver, barrel bore, gas chamber, gas piston, bolt carrier, and bolt are cleaned and lubricated. Final cleaning of the rifle is accomplished upon return from firing and daily over the course of the subsequent 3 to 4 days.
  - after drill and field exercises without firing—upon return from drill and field exercises;
  - in a combat situation and on prolonged exercises—daily during lulls in battle and during breaks in exercises;
  - if the rifle is not utilized, not less than once weekly.
40. Lubricate the rifle after cleaning. Place lubricant only on a well-cleaned and dry metal surface immediately after cleaning, to prevent the influence of moisture on the metal.
41. Cleaning and lubrication of the rifle is conducted under the direct supervision of the squad commander. The squad commander is required to determine the necessary degree of disassembly, cleaning, and lubrication; to ensure the serviceability of the accessories and good quality of the cleaning materials; to ensure the correctness and quality of the cleaning that is accomplished; and to give permission for lubrication and assembly.
- Officers are required periodically to be present during cleaning of the rifle and to ensure the correctness of its conduct.
42. In a barracks or field camp situation, accomplish cleaning of the rifle in specially designated areas on tables equipped for this purpose, and in combat situations or on exercises on clean ground cloths, plywood, boards, and so on.
43. At the range, clean the rifle after firing with a solution of rifle bore cleaner or liquid rifle lubricant in places set aside for this purpose. Cleaning of rifles with rifle bore cleaner solution is accomplished only under the supervision of officers or senior noncommissioned officers.
- It is necessary to clean a rifle cleaned at a firing range with liquid rifle lubricant with a rifle bore cleaning solution upon return to barracks.
- Rifles are cleaned and lubricated **only with liquid rifle lubricant** in field conditions.
44. The following substances are used for cleaning and lubricating rifles:
- **liquid rifle lubricant**—for cleaning the rifle and lubricating its components and mechanisms at air temperatures from +50°C to -50°C;



- **rifle lubricant**—for lubricating the barrel bore, components, and mechanisms of the rifle after cleaning; this lubricant is used at air temperatures above +5°C;
- **rifle bore cleaning solution**—for cleaning barrel bores and other components of the rifle that are subjected to the effects of propellant gases.

Note. Rifle bore cleaning solution is prepared in units in sufficient quantity for cleaning weapons over the course of a single day. The solution is composed of:

- water suitable for drinking - 1 liter;
- ammonium carbonate - 200 grams;
- potassium bichromate - 3-5 grams.

A small amount of rifle bore cleaner solution can be stored for not more than seven days in glass containers with tight lids, in a dark place and away from heat sources. **The pouring of rifle bore cleaner solution into oilers is prohibited.**

- a **rag** or **KV-22 paper**—for wiping, cleaning, and lubricating the rifle;
- **oakum** (short flax), cleaned of lint—only for cleaning the barrel bore.

A wooden stick or stylus can be used for ease in cleaning slots, recesses, and holes.

### Cleaning and lubrication

45. Cleaning of the rifle is accomplished in the following sequence:

- 1) Prepare the materials for cleaning and lubrication.
- 2) Disassemble the rifle.
- 3) Inspect the accessories as instructed in paragraph 68, and prepare them for use during cleaning (Figure 46).



**Figure 46.**

Rifle accessories prepared for cleaning:

- 1 - cleaning rod
- 2 - jag
- 3 - combination tool
- 4 - combination tool cover [muzzle guide]
- 5 - screwdriver blade
- 6 - cleaning rod head



#### 4) Clean the barrel bore.

Place the rifle in the recesses of the cleaning table or on a normal table, and in the absence of a table stand the rifle on the ground or floor, butt stock down.

**To clean the barrel bore with liquid rifle lubricant,** work the oakum in the shape of a figure-8, position the center of the "8" on the end of the jag and lay the tails of the oakum along the shaft of the jag. The ends of the oakum should be shorter than the jag shaft, and the thick layer should allow the jag with oakum to be inserted into the barrel bore with modest hand effort. Pour a small amount of liquid rifle lubricant on the oakum and lightly squeeze the oakum with the fingers. Insert the cleaning rod with jag and oakum into the barrel bore and secure the combination tool cover [muzzle guide] on the barrel. If the cleaning of the barrel is being conducted after firing, unscrew the compensator. Holding the muzzle portion of the rifle and combination tool cover in one hand, with the other, having grasped the combination tool, pass the cleaning rod smoothly through the entire length of the barrel bore several times without bending it. Remove the muzzle guide from the barrel when cleaning the muzzle portion. Remove the cleaning rod, replace the oakum, dip it in liquid rifle lubricant, and clean the barrel bore several times in the same procedure. After this, carefully wipe the cleaning rod and swab out the barrel bore with clean, dry oakum, then with a clean patch. Inspect the patch and, if it shows any traces of powder residue (blackening), corrosion, or contamination, continue cleaning the barrel bore. Then again swab it with clean oakum and a patch. If the patch comes out clean, without blackening from powder residue or the yellow color of corrosion, carefully inspect the barrel bore in the light from the muzzle and breech ends, slowly rotating the barrel in the hands. Pay special attention during this inspection to the corners of the grooves and ensure that no powder residue remains in them.

**To clean the barrel bore with rifle bore cleaning solution,** use the bristle brush dipped in the solution, then swab the barrel bore with oakum. Continue cleaning with rifle bore cleaner until all powder residue is removed, until the bore brush or oakum comes out of the barrel bore without black or green traces. After this, swab the barrel bore with dry oakum and then a clean patch. On the following day, check the quality of the cleaning that was accomplished and, if powder residue is detected on a clean patch run through the barrel bore, repeat the cleaning in the same procedure.

Upon completion of cleaning the rifled portion of the barrel bore, clean out the chamber from the receiver end with the same procedure.

Note. If the jag with cleaning rod becomes stuck in the barrel bore during cleaning, a small quantity of warmed liquid rifle lubricant must be introduced into the bore. After several minutes, attempt to pull the cleaning rod from the bore. If the cleaning rod does not pull out, send the rifle to a repair facility.

5) Wash the gas chamber, gas cylinder, and compensator with liquid rifle lubricant or rifle bore cleaner and clean with oakum (rag) using the cleaning rod or wooden stylus. After cleaning with rifle bore cleaner, wipe the gas chamber dry with a rag. Inspect the barrel bore to ensure that no foreign objects remain in it, and wipe the exterior surface of the barrel. Wipe the gas cylinder dry after cleaning.

6) Clean the receiver, bolt carrier, bolt, and gas piston with a rag dipped in liquid rifle lubricant or rifle bore cleaner. Wipe dry. If liquid rifle lubricant is used for cleaning after firing, coat the gas piston and also the cylindrical recesses of the bolt with lubricant or wrap them for 3 to 5 minutes in a rag wetted with lubricant. After this, using the stylus, remove hardened powder residue and then wipe them dry.

7) Wipe the remaining metal components dry with the rag. If heavily contaminated, clean them with liquid rifle lubricant, and then wipe dry.

8) Wipe the wooden components with a dry rag.



46. The soldier reports the completion of rifle cleaning to his squad commander. With the squad commander's permission, the rifle is lubricated and assembled.

47. Lubricate the rifle in the following sequence:

1) Lubricate the barrel bore. Screw the jag on the cleaning rod and place a patch on it that has been dipped in lubricant. Insert the jag into the barrel bore from the muzzle end and smoothly pass it through the entire length of the barrel bore two or three times, in order to coat the barrel bore with an even layer of lubricant. Lubricate the chamber and compensator.

2) Using an oiled rag, coat all remaining metal components and mechanisms of the rifle with a thin layer of lubricant. Excess lubricant facilitates contamination and can cause stoppages during firing. Do not lubricate the wooden components.

Upon completion of lubrication, assemble the rifle, check the function of its components and mechanisms, clean and lubricate the magazines and accessories, and then show the rifle to the squad commander.

48. During the cold time of year at temperatures of  $+5^{\circ}\text{C}$  and below, lubricate the rifle only with liquid rifle lubricant. Carefully remove the old lubricant from all the rifle's components during the transition from one lubricant to another.

To remove lubricant, it is necessary to accomplish complete disassembly of the rifle, wash all metal parts in liquid rifle lubricant, and wipe them with a clean rag.

Note. The use of rifle lubricant during air temperatures below  $+5^{\circ}\text{C}$  in place of liquid rifle lubricant **is categorically prohibited**.

49. A rifle brought from the cold into warm surroundings should be cleaned after 10 to 20 minutes (after it has warmed up). It is recommended to wipe the exterior surfaces of a rifle with a rag dipped in liquid rifle lubricant before entering warm surroundings.

50. A rifle turned in to a depot for long-term storage should be lubricated with liquid rifle lubricant. It should then be wrapped in one layer of inhibiting paper, and then a layer of waxed paper.

51. Chemical decontamination, disinfection, and radioactive decontamination of rifles is conducted in accordance with the instructions of the unit commander.

### Storage and preservation of the rifle and cartridges

52. Responsibility for storage of rifles and cartridges in units belongs to the unit commander.

The rifle is always stored unloaded, with the magazine removed, bayonet-knife removed, hammer released, selector on safe, and rear sight slider set at "II." The rifle is removed from safe only when conducting fire.

The rifleman is obligated always to maintain the rifle in a clean and fully serviceable condition, to handle it carefully, and inspect it at the intervals specified in paragraph 61. Do not conduct excessive releases of the hammer [trigger pulls] during the inspection of the trigger mechanism.



**53.** In a barracks or field camp situation, the rifle is stored in an arms rack. The magazines, magazine pouches, bayonet-knife in scabbard, and oiler are stored in a special compartment of the same arms rack, along with the combination tool with accessories and bag for the rifle. The magazine pouch and sling should be stored clean and dry.

**54.** During temporary occupation of any kind of building, store the rifle in a dry place away from the door, oven, and heating devices. Keep the rifle with you in a combat situation.

**55.** When moving to exercises and on the march, carry the rifle on the sling at "sling arms," "port arms," or across the back. The sling should be adjusted so that the rifle does not strike hard objects of one's equipment. Carry the rifle with magazine inserted. The remaining magazines are carried in the pouch. Carry the rifle with folding stock with the stock folded in all conditions.

The rifleman should keep the rifle on the sling or in his hands during breaks between exercises, and also at short halts.

**56.** Hold the rifle vertically between the knees during movement by truck or armored transporter. Hold the rifle in the hands during movement on tanks, protecting it from striking the armor.

**57.** Stand the rifles in a special arms rack when moving by railroad or water vessel. If the rail car or ship is not equipped with rifle racks, hold the rifle in your hands or place it on the floor so that it cannot fall or be damaged.

**58.** To prevent bulging or rupture of the barrel, it is prohibited to plug the barrel bore with anything.

**59.** At firing ranges cartridges should be stored in a dry place and sheltered from the sun's rays when possible.

Cartridges must be handled carefully and protected against damage by moisture and dirt. The lubrication of cartridges is prohibited. Wiping of cartridges is not permitted.



## Chapter VI

**INSPECTION OF THE RIFLE AND PREPARATION FOR FIRING****General instructions**

- 60.** Inspections of the rifle, accessories, and magazines are conducted to ensure their serviceability, cleanliness, lubrication, and readiness for firing.
- 61.** Soldiers and sergeants inspect rifles:
- daily;
  - before standing guard, before departure on exercises; in a combat situation—periodically during the day and before carrying out combat missions;
  - during cleaning.
- 62.** Officers inspect rifles periodically at intervals established by Internal Service Regulations, and also all rifles, or a portion of them, before firing, standing guard, and before carrying out a combat mission.
- 63.** Deficiencies of the rifle, magazines, and accessories should be corrected immediately. If the unit is unable to correct them, the rifle, magazines, and accessories should be turned in to a weapons repair facility.
- 64.** Typical deficiencies that disrupt the normal accuracy of the rifle may include the following:
- The front sight is bent or broken, or has been displaced to the side, upward, or downward. The bullets will deviate toward the side opposite the displacement of the top of the sight.
  - The rear sight leaf is bent or distorted. The bullets will deviate toward the side of displacement of the rear sight aperture.
  - The barrel is bent. The bullets will deviate toward the direction of deflection of the muzzle portion of the barrel.
  - The muzzle face is nicked or dented, the barrel bore shows wear (especially at the muzzle), wear and rounding of the corners of the lands, or blisters; looseness at the rear sight leaf, front sight, or stock—all these increase the dispersion of bullets.

**Procedure for inspection of the rifle by soldiers and sergeants**

- 65.** During the daily inspection confirm the presence of the rifle's parts and check for any corrosion, dirt, and also dents, scratches, pitting, and any other damage on the external metal parts of the rifle that could disrupt normal functioning of the mechanisms. Check for cracks, splinters, or breakage on the wooden parts. The cleaning rod is securely held. In addition, check the condition of the lubricant on those components of the rifle that are visible without disassembly, the presence of the sling, accessories, magazines, their pouch, and the bayonet-knife. When checking the rifle with folding stock, ensure that its carrying bag is present.



**66. During inspection of the rifle before standing guard, before departure to exercises, and in a combat situation** check the same items as during the daily inspection. In addition, ensure the serviceability of the front and rear sights. Confirm that there are no foreign objects in the barrel bore; verify the proper functioning of the components and mechanisms.

**When checking the serviceability of the front and rear sights** ensure that the rear sight aperture is not pitted, the slider moves smoothly along the sight leaf and is securely held at the set position by its catch, and the spring is reliably holding the sight leaf. Ensure that the front sight is not bent and is firmly held in the slider, the scribe mark on the slider coincides with the scribe mark on the front sight base, and the slider is securely held in the front sight base.

**To inspect the proper functioning of the components and mechanisms:**

- place the selector on automatic fire (**AB**), draw the bolt carrier rearward to stop with the charging handle, and release it. The bolt carrier should energetically return to the forward position. Draw the bolt carrier back again with the handle, squeeze the trigger and, controlling the bolt carrier by the handle, slowly release it. During the approach of the bolt carrier to the extreme forward position one should hear a click—the strike of the hammer on the firing pin.
- place the selector on semi-automatic fire (**OA**), squeeze the trigger, draw the bolt carrier rearward to stop by the handle and, not releasing the trigger, release the bolt carrier. Now squeeze the trigger. You should hear a click—the hammer, disengaging from the semi-automatic fire sear, is on the sear notch. Now place the rifle on safe and squeeze the trigger. The trigger should not move backward, and the hammer should remain on the sear notch [cocked]. Take the rifle off safe and squeeze the trigger. You should hear the hammer striking the firing pin.

When moving the selector, ensure that it is reliably held in the set position.

With the rifle with folding stock, ensure that the stock detent functions energetically and that the stock remains in the deployed or folded position. Check the serviceability and attachment of the shoulder rest.

**67. During inspection of the rifle at the time of cleaning,** check each component and mechanism separately and ensure that there is no deterioration of the metal, pitting, dents, corrosion, and dirt on the metal parts, and no gouges or cracks in the wooden parts. Pay special attention to the condition of the barrel bore.

**68. During inspection of the accessories** ensure the presence and serviceability of all the accessory tools.

To check the cleaning rod, jag, and brush, screw the jag and brush onto the cleaning rod in turn and verify by eye that they are not bent. The jag and brush should be secure on the cleaning rod. The upper portion of the jag should rotate freely. The brush should be clean and its bristles should not be falling out.

The combination tool should not be cracked, dented, or distorted. The head of the cleaning rod should not pass through the smaller lateral holes of the combination tool. The combination tool cover should be securely held on the barrel and not have significant lateral play, so that the cleaning rod does not touch the muzzle portion of the barrel during cleaning. The jag should not pass through the opening in the combination tool cover.

The oiler should not have cracks or large dents. The oiler cap should have a gasket and the cap should screw on tightly. No lubricant should leak from the oiler.



The screwdriver should not have excessive wear and dents on the blade and on the walls of the notches. The drift and tapered pin should not be bent.

**69.** Soldiers and sergeants are required to report immediately to their commander all deficiencies detected during inspection of the rifle and accessories.

### Procedure for inspection of the rifle by officers

**70.** Officers inspect the rifle in assembled and disassembled form.

**71.** Inspection of the rifle in assembled form is conducted in accordance with paragraphs 65 and 66. In addition, check:

1) **Delivery of the cartridges into the chamber, extraction, and ejection of cases:** Load a magazine with training cartridges, insert it into the rifle and, not pressing on the magazine latch, try to pull the magazine out by hand. The magazine should freely enter the receiver well and be reliably held by the magazine latch. Charge the rifle several times. The training cartridges should be delivered from the magazine into the chamber and be energetically extracted and ejected from the receiver.

2) **Serviceability of the stock:** The butt plate screws should be tight, the screw slots cleaned. With finger pressure on the stock well cover, the combination tool should pop out under the impulse of the spring far enough so that it can be grasped by hand. Check the folding stock as indicated in paragraph 66. In addition, ensure the arms are not bent and the stock deploys and folds smoothly.

3) **Serviceability of the magazines:** The magazine should not have creases and wire edges on the bodies and lips that could inhibit the delivery of cartridges. The stop leaf should reliably hold the magazine floor plate. The follower should energetically return to the topmost position under the impulse of its spring.

4) **Serviceability of the bayonet-knife:** The bayonet-knife should be firmly held on the rifle, be freely removed from it, and be firmly held in the scabbard. The blade edge should not be dented, nor should the scabbard have dents. The handle should not be cracked or broken. The insulating portion of the scabbard and of the bayonet-knife should not be damaged.

**72.** To inspect the rifle in disassembled form, accomplish a partial or complete disassembly and wipe each component dry.

During inspection of the rifle in disassembled form, check the number on its components (paragraph 5). Carefully inspect each component and mechanism to ensure that there is no deterioration, damaged threads, scratches and pits, dents, eruptions, or traces of corrosion and dirt on the metal parts, and cracks and breakage on the wooden parts.

1) **During inspection of the barrel** pay special attention to the condition of the barrel bore. The bore should be inspected from the muzzle end. Place a piece of white paper in the receiver, hold the barrel in a position that will permit light to reflect from the paper and illuminate the barrel bore. Inspect the chamber from the breech end.

The following deficiencies may be observed in the barrel bore:

— **A pattern of erosion** in the form of intersecting thin lines, from the breech portion as a rule. In the past, cracks have formed during firing in sites of erosion patterns, and the chrome begins to disappear in the form of separate spots; later the spotting increases and transitions



into flakes of chrome. When insufficient care is shown in cleaning, the spots where the chrome has flaked off become corroded.

- **Blisters** - significant hollowing in the metal that forms as a result of a large number of rounds fired from the barrel (erosion of the barrel) or as a result of prolonged influence of corrosion in places where the chrome is flaked. A barrel in which the chrome is flaked or blisters have formed must be cleaned especially carefully after firing.
- **Wear of the lands or rounding of the corners of the lands**, especially on their left edge, that is noticeable to the eye.
- **A barrel bulge**, noticeable in the barrel bore in the form of a transverse dark (shady) dense ring (semi-circle) or detectable by a bulge of the metal on the exterior surface of the barrel. An officer determines the possibility of firing from a barrel that has a bulge. A rifle that has a small circular bulge of the barrel bore with no bulge of metal on the exterior surface is suitable for further firing if it satisfies the conditions of a normal zero.

Detected deficiencies of the barrel bore should be noted in the log book of qualitative condition of the rifle.

**During inspection of the barrel's exterior** ensure that the face of the gas chamber cylinder is not dented, and ensure the action of the detent. Finger pressure on the detent should cause it to recess, and after release it should come out of its well and assume its initial position, engaging the notch on the compensator or barrel sleeve. When the detent is depressed, the compensator or barrel sleeve should be easily unscrewed from the barrel.

2) **During inspection of the receiver** ensure that the ejector lug is not broken, the flanges [rails] are not bent or dented; the stock and pistol grip are securely attached; and the magazine latch spring functions properly.

3) **During inspection of the bolt carrier** pay special attention to the attachment of the gas piston. A slight wiggle is permissible.

4) **During inspection of the bolt** pay special attention to the serviceability of the firing pin and extractor.

To check the serviceability of the firing pin, hold the bolt in the vertical position. After this, rotate the bolt 180°—the firing pin should move within the bolt of its own weight. Move the firing pin forward to stop—the striker should emerge from the hole at the bolt face. The striker should not be chipped or heavily eroded.

To check the serviceability of the extractor, draw it to the side with a finger and release it. The extractor should energetically return to its initial position under the impulse of its spring. Insert a training cartridge on the bolt face and attempt to pull the training cartridge forward. The cartridge should be held firmly to the bolt face by the extractor claw. The extractor claw should not show any deterioration.

5) **During inspection of the components of the recoil and firing mechanism** ensure that the springs are not broken or bent, and that the lugs of the moving parts are not cracked or broken.

### Inspection of service ammunition

**73.** Cartridges are inspected before firing, during guard mount, and upon instructions of the commander. **During inspection of cartridges** ensure that:

- there is no corrosion on or distortion of the cases, and the projectiles are tight in the case mouths.



- there is no green residue on the primers and they do not protrude above the surface of the cartridge base.
- training ammunition is not mixed in with service ammunition.

Turn all unserviceable ammunition in to the depot.

If the ammunition is dusty and dirty, covered with a thin layer of green residue or corrosion, it must be wiped with a clean, dry rag. The wiping of cartridges with an oily rag and the loading of cartridges into magazines that have been liberally lubricated internally are prohibited.

### **Preparation of the rifle for firing**

**74.** Preparation of the rifle for firing is conducted for the purpose of ensuring its reliable functioning during firing.

The rifle is prepared for firing under the supervision of the squad commander.

**75.** To prepare the rifle for firing:

- clean, inspect the rifle in disassembled form, and lubricate it;
- inspect the rifle in assembled form;
- inspect the magazines.

Immediately before firing, swab the barrel bore (the rifled portion and the chamber) dry, inspect the ammunition, and load the magazines.

If the rifle has been in the cold for a long time, before loading it pull the bolt carrier to the rear energetically and move it forward by hand several times.



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## Chapter VII

### CONFIRMATION OF THE RIFLE'S ZERO AND BRINGING IT TO A NORMAL ZERO

#### General instructions

**76.** Rifles that are in units should always be brought to a normal zero.

Confirmation of the rifle's zero is accomplished:

- upon the weapon's issuance to the unit;
- after repair or replacement of components that might change its zero;
- upon observation during firing of abnormal deviation of bullets.

In a combat situation, confirmation of a rifle's zero is conducted periodically at every opportunity.

**77.** The rifle must be carefully inspected and observed deficiencies corrected before confirmation of its zero.

**78.** Confirmation of a rifle's zero and bringing it to a normal zero are accomplished under the supervision of the company (battery, platoon) commander at a firing range in calm weather, in a covered range, or on a portion of a range that is sheltered from the wind, under normal illumination.

Immediate supervisors, up to brigade-level command, are required to monitor for the precise observation of the regulations of zero confirmation and bringing rifles to a normal zero.

**79.** A unit's best shooters, selected by the unit commander, conduct the firing for zero confirmation and for bringing rifles to zero.

The riflemen to whom the rifles are assigned, their squad commanders, and a master armorer with required tools should be present during the zero confirmation process.

**80.** Zero confirmation and bringing a rifle to a normal zero are accomplished by firing conventional ball ammunition. The cartridges should all be from the same lot. The range of firing is 100 meters, with the rear sight set at 3. The position for firing is prone with a rest. The rifle is fired without the bayonet-knife affixed. Rifles that have compensators are brought to a normal zero with their compensators, which then are not removed for subsequent firing.

**81.** Firing is conducted in single shots at a confirmation target (or at a black rectangle 35 cm in height and 25 cm in width) that is attached to a white background of 1 meter height and 0.5 meters width. The middle lower edge of the confirmation target (black rectangle) serves as the aimpoint. It should be approximately at eye level to the firer. The normal position of the mean point of impact (MPI) is marked with chalk or colored pencil on a perpendicular line at a distance of 25 cm above the aimpoint. This point is called the control point (CP). The center of the circle is used for the control point on a confirmation target.



### Confirmation of zero

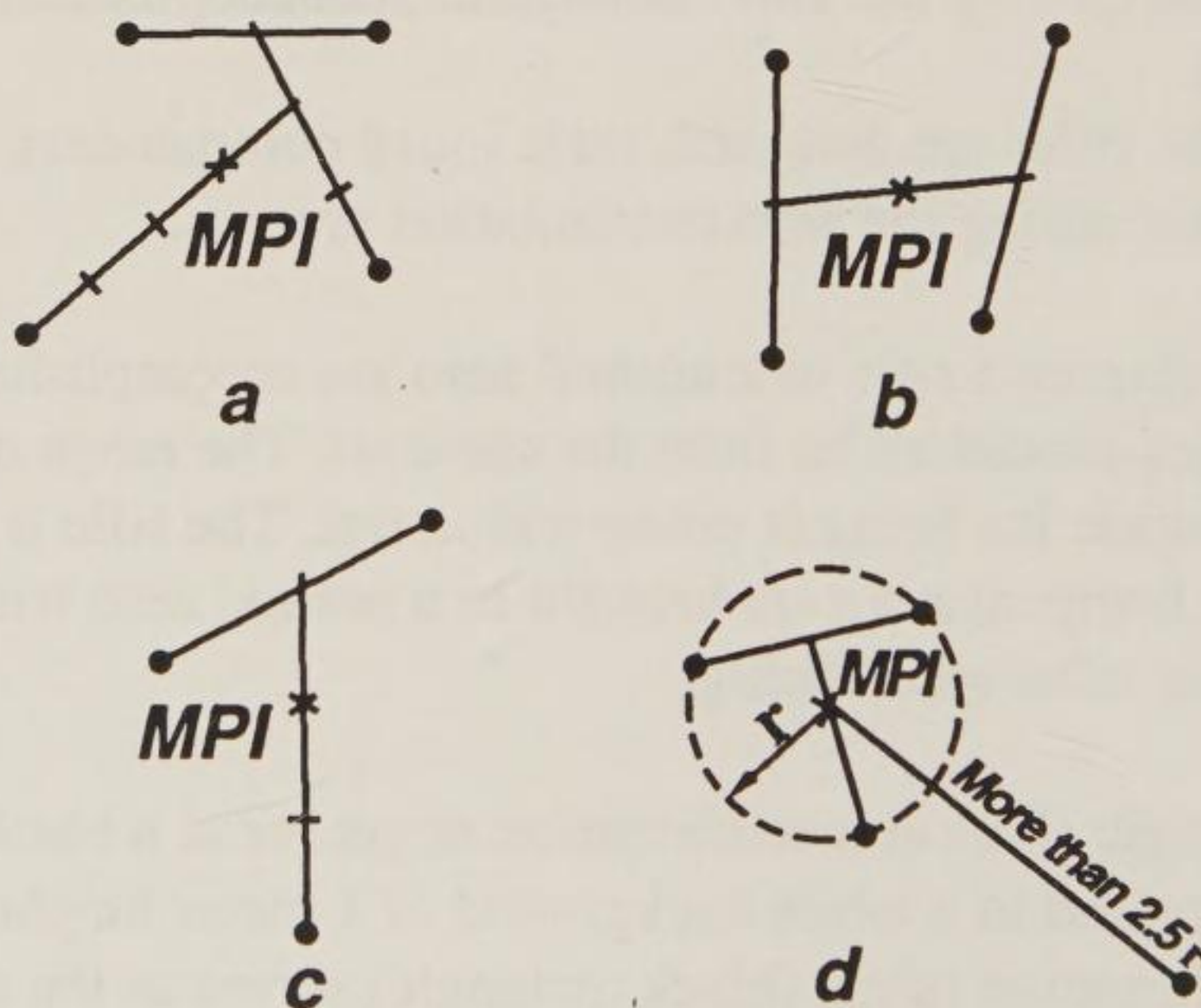
**82.** Four semi-automatic shots are fired to confirm zero, each one carefully aimed in the same manner at the midpoint of the lower edge of the black rectangle. Upon completion of the firing, the commander who is supervising the confirmation process examines the target panel and determines the accuracy and position of the mean point of impact by the position of the bullet holes. Soldiers and sergeants who are conducting the firing are not permitted to approach the targets.

**83.** The shot group is considered normal if all four bullet holes or three (with one flyer) will fit in a circle of 15 cm diameter. If this criteria is not met the firing is repeated. Upon a second unsatisfactory firing result the rifle is sent to a weapons repair facility to eliminate the cause of bullet dispersion.

If the shot group meets the requirement, the commander determines the mean point of impact and its position relative to the control point.

**84.** For determination of the mean point of impact of four bullet holes:

- join the two closest holes with a straight line and divide the distance between these holes in half;
- join this midpoint with a third hole and divide the distance between them into three equal parts;
- join the segment mark closest to the first two bullet holes to the fourth bullet hole, and divide this line into four equal segments.



**Figure 47.** Determination of the mean point of impact:

a, b - with four bullet holes

c - with three bullet holes

d - determination of a flyer

The point that is at the third segment mark from the fourth bullet hole is the mean point of impact of four bullet holes (Figure 47a).



One can also determine the mean point of impact in the following manner: join the bullet holes in pairs, then join the midpoints of both lines and divide this third line in half. This segment mark is the mean point of impact (Figure 47b).

**85.** If all four bullet holes do not fit in a circle of 15 cm diameter, then it is permitted to determine the mean point of impact using the three most accurately positioned bullet holes under the condition that the fourth hole deviates from the mean point of impact of the other three bullets by more than 2.5 radii of the circle that contains these three holes (Figure 47d).

**86.** To determine the mean point of impact of three holes, one must:

- join the two closest bullet holes with a straight line and divide the distance between them in half;
- join this midpoint with the third hole and divide the distance between them into three equal parts.

The point closest to the first two holes will be the mean point of impact (Figure 47c).

**87.** With a normal zero, the mean point of impact should coincide with the control point, or deviate from it in any direction by not more than 5 cm, that is, it should not extend beyond the boundaries of the small circle of the firing target.

**88.** A rifle whose zero is found to be abnormal during confirmation is brought to a normal zero in accordance with paragraph 89.

### **Bringing the rifle to a normal zero**

**89.** If during the firing of single shots the mean point of impact deviates from the control point in any direction by more than 5 cm, the position of the front sight is changed appropriately. If the mean point of impact is below the control point, screw the front sight in. If the mean point of impact is above the control point, screw the front sight out. If the mean point of impact is to the left of the control point, move the slider to the left. If the mean point of impact is to the right of the control point, move the slider to the right.

A 1-millimeter lateral displacement of the front sight will move the mean point of impact 26 cm at 100 meters. One complete revolution of the front sight will move the mean point of impact 20 cm in elevation at 100 meters.

A second firing is conducted to confirm the correctness of the sight changes.

**90.** After the rifle is brought to a normal zero, the old scribe mark on the front sight slider is deleted, and a new mark is put in its place.

The final result of firing during this process of bringing the rifle to a normal zero is recorded in the logbook of qualitative condition.



## PART TWO

## METHODS AND INSTRUCTIONS FOR FIRING THE RIFLE

## Chapter VIII

## METHODS FOR FIRING THE RIFLE

## General instructions

91. The rifle can be fired from various positions and from any location from which the target is visible or a piece of terrain can be seen on which the appearance of the enemy is anticipated.

When conducting stationary fire, the rifleman takes up a standing, kneeling, or prone position, depending on the conditions of the terrain and enemy fire.

The rifleman can fire on the move without halting and from short halts.

When moving by armored transporter, truck, tank, amphibious assault vehicles, and skis, the rifleman uses a firing position suitable for himself, observing safety measures.

92. In combat conditions, the rifleman occupies and prepares a position for firing on orders of the squad commander or independently. In the command for occupation of a firing position, the commander can also determine the time for preparation, the specific firing position [standing, kneeling, prone], the sector of fire, or the direction of fire.

A site must be selected for firing that ensures the best observation and field of fire, covers the rifleman from enemy fire and observation, and permits him to employ proper methods of firing.

Depending on the situation, the firing position is selected in a trench, foxhole, shell crater, ditch, behind rocks, a stump, and so on. In a built-up area, a firing position can be selected in the window of a building, on a roof, in a basement, and so on.

Do not select firing positions close to distinguishing local objects, and also on the crests of rises.

93. When preparing a firing position, one must confirm the possibility of conduct of fire to the rear or in other directions, for which the rifle is successively laid on various local objects. One should prepare a rest for the rifle's fore end for ease in conducting fire.

94. A command is given for the occupation of a firing position, for example: "**Private Ivanov** (or rifleman so-and-so), **from that shell crater—prepare to fire!**" Upon this command, the rifleman, using the terrain, quickly occupies the designated firing position, prepares to fire, and commences firing.

95. To change firing positions, the command is given: "**Private Ivanov** (or rifleman so-and-so), **to the tree stump—move out!**" Upon this command, the rifleman considers the route to the new position, covered places for short halts, and methods of movement, if he was not so instructed in the command.

Depending on the situation and the nature of the terrain, the rifleman in combat moves on the run, quick step, and rushes or crawling. Before beginning movement, he places the rifle on safe.



96. While moving at a run, quick step, or rushes, hold the rifle in one or two hands, whichever is more comfortable.

When crawling, hold the rifle with the right hand by the sling near the upper swivel or by the fore end (Figure 48).



Figure 48. Holding the rifle while crawling

97. For successful accomplishment of firing tasks, the rifleman should master the methods of fire with the rifle.

Each rifleman, guided by the general regulations for executing firing methods, and considering his own individual preferences, should develop and employ the most suitable and stable position for firing, achieving the same position of head, body, hands, and feet.

Depending on his physical peculiarities, the rifleman is permitted to conduct fire from the left shoulder, to aim with both eyes open, and so on.

98. Firing from the rifle is composed of preparing to fire, conducting fire, and ceasing fire.

### Preparation for firing

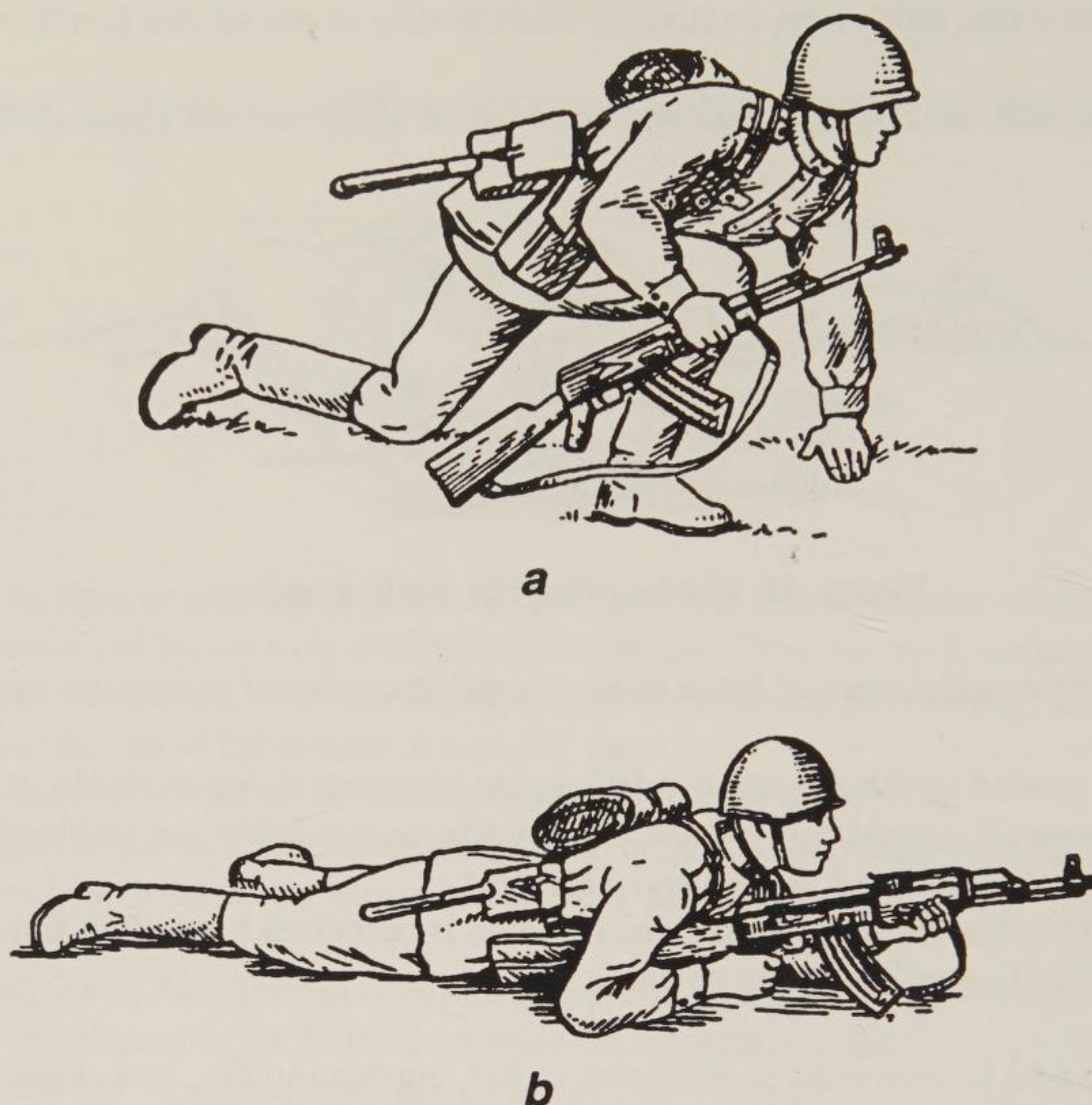
99. The rifleman prepares for firing on command or independently. In training exercises, the command for preparing to fire can be given in segments, for example: **“On the firing line, one step forward—march!”** and then **“Load!”** If necessary, a firing position can be specified before the command to load is given.

100. **Preparation for firing** includes assuming the firing position and loading the rifle.

101. **For firing from the prone position:**

a) **If the rifle is at “sling arms”** [in the Soviet Army’s manual of arms, the rifle is behind the right shoulder with the sling passing in front of this shoulder]. Move the right hand along the sling toward the top and, removing the rifle from the shoulder, grasp it with the left hand behind the trigger guard and receiver. Then grasp the rifle with the right hand at the hand guard and fore end with the muzzle portion forward. Simultaneously, take a full step forward and slightly to the right with the right foot. Leaning forward, drop down on the left knee and place the left hand on the ground in front of you, fingers pointing to the right (Figure 49a). Then, making contact in succession on the thigh of the left leg and the left forearm, lay down on your left side and quickly roll to your stomach, spreading your feet slightly to the side with toes pointed outward. Position the rifle with the fore end on the palm of your left hand (Figure 49b).





**Figure 49.** Sequence for assuming the prone firing position:

- a - rifleman goes down on left knee and left hand
- b - the rifle is held in the left hand by the fore end

b) **If the rifle is at "port arms"** [in the Soviet Army's manual of arms, the rifle is across the chest, muzzle to the left, with the sling across the soldier's back]: Grasp the rifle from below with the left hand on the fore end and hand guard and, raising it slightly upward and forward, disengage the right hand from the sling. Then bring the sling forward across the head and grasp the rifle with the right hand by the receiver and fore end, with muzzle forward. Subsequently assume the prone firing position just as from the position with the rifle at "sling arms."

**102. For firing from the kneeling position:** grasp the rifle in the right hand (paragraph 101) by the hand guard and fore end with muzzle forward, and simultaneously having placed the right leg to the rear, drop down on the right knee and sit on the ankle. The left lower leg should remain in the vertical position, and the thigh should form close to a right angle with the lower leg. Reposition the rifle with the fore end in the left hand, having pointed it toward the target (Figure 50).





Figure 50. The kneeling firing position

**103. For firing from the standing position:**

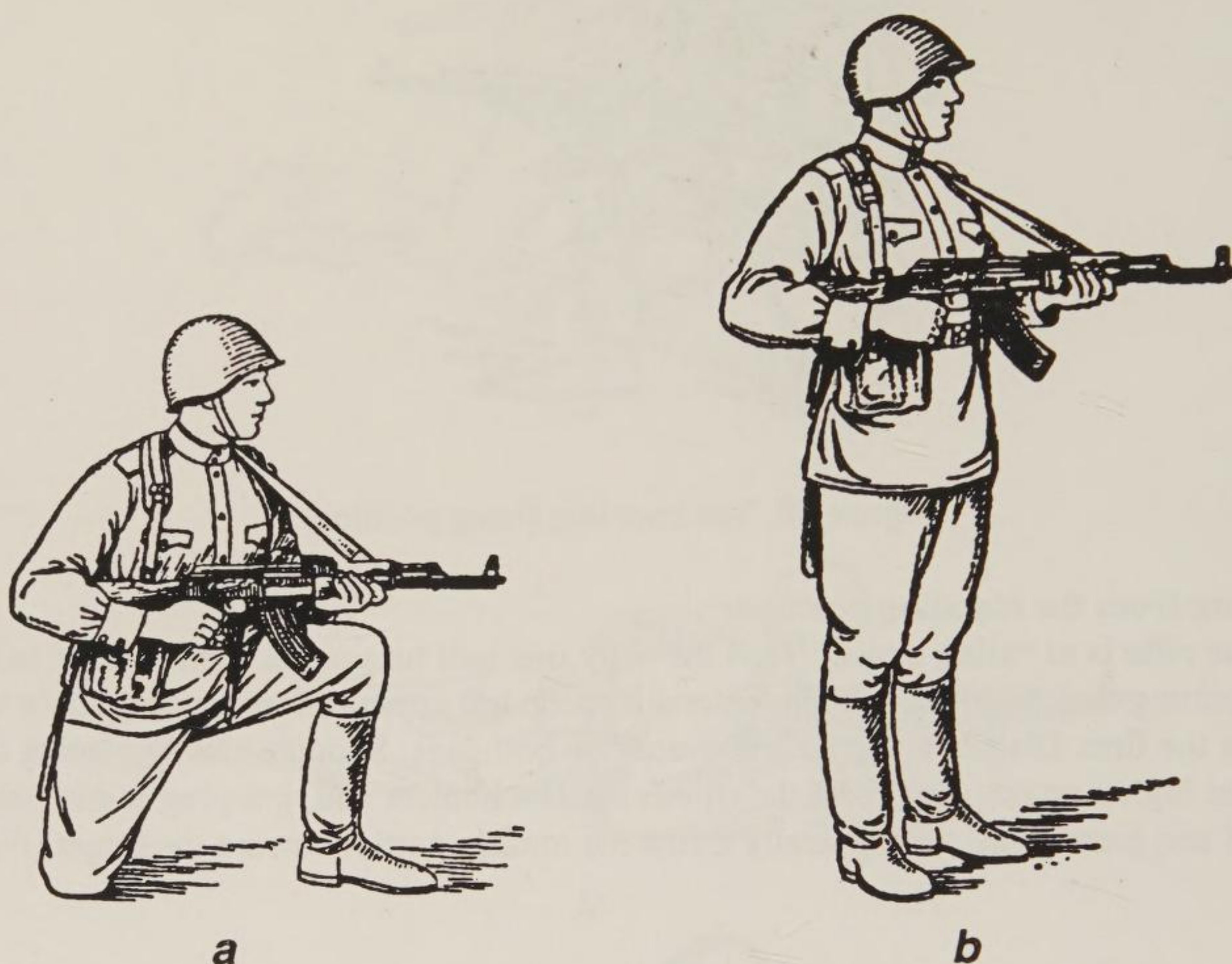
1) **If the rifle is at "sling arms."** Turn the body one-half turn to the right relative to the target and, without putting weight on the left leg, extend it to the left approximately a shoulder's width, as comfortable to the firer. Distribute the weight evenly on both legs. Simultaneously placing the right hand somewhat higher on the sling, take the rifle from the shoulder and, grasping it with the left hand at the fore end and hand guard, energetically thrust the muzzle portion toward the target (Figure 51).



Figure 51. The standing firing position



**104.** When assuming a firing position with the rifle at “port arms,” it is permitted to not remove the sling from the neck, but use it for a steadier hold of the rifle during firing (Figure 52).



**Figure 52.** Firing position using the sling:

a - kneeling

b - standing

2) **If the rifle is at “port arms.”** Grasp the rifle from below with the left hand on the fore end and hand guard and, raising it slightly upward and forward, disengage the right hand from the sling. Then bring the sling forward across the head. Simultaneously rotate the body one-half turn to the right and, without shifting weight to the left leg, extend it to the left approximately a shoulder's width, as comfortable to the firer. Energetically thrust the rifle forward with muzzle portion toward the target (Figure 51).

**105. To load the rifle:**

- holding the rifle with the left hand by the fore end, insert a loaded magazine into the rifle with the right hand (see paragraph 7.9 and Figure 11), if it has not already been inserted;
- place the selector on automatic fire (AB), if the rifle is on safe;
- draw the bolt carrier to the rear to stop with the handle and release it;
- place the rifle on safe (Figure 53) if you do not intend immediately to commence firing or the command “Fire” has not been given. Move the right hand to the pistol grip (see Figure 49b).





**Figure 53.** The rifle placed on safe

**106.** If before loading the rifle you determine that the magazine has not been loaded with cartridges, or the cartridges were expended during firing, you must load the magazine.

To load the magazine, grasp the magazine in the left hand with the mouth up and convex curve to the left. Hold the cartridges in the right hand with projectiles toward your little finger, so that the case bottoms extend up slightly toward the thumb and index finger. Holding the magazine canted somewhat to the left, insert the cartridges with the thumb one at a time (Figure 54) under the magazine lips with the cartridge base to the rear wall of the magazine.



**Figure 54.** Loading a magazine with cartridges

**107.** When preparing for firing from a rifle with folding stock, deploy the stock before loading the rifle. Holding the rifle by the left hand at the shoulder rest and fore end, and with the right hand by the pistol grip, press on the detent button with the thumb of the right hand. Fold the arms slightly down-



ward with the left hand (Figure 55). Then grasp the rifle by the fore end and hand guard with the left hand, with the right hand fold the arms back until they are locked in the deployed position by the detents, and adjust the shoulder rest so that it is perpendicular to the arms.



**Figure 55.**  
Deploying the folding stock

In the event of absence of time for deploying the stock (upon the sudden appearance of the enemy), the rifleman prepares for firing (and conducts fire) from a rifle with folded stock. Press the rifle toward your trunk by the rear portion of the receiver and pistol grip (Figure 56).



**Figure 56.**  
Firing position with folded stock



## Firing the shot

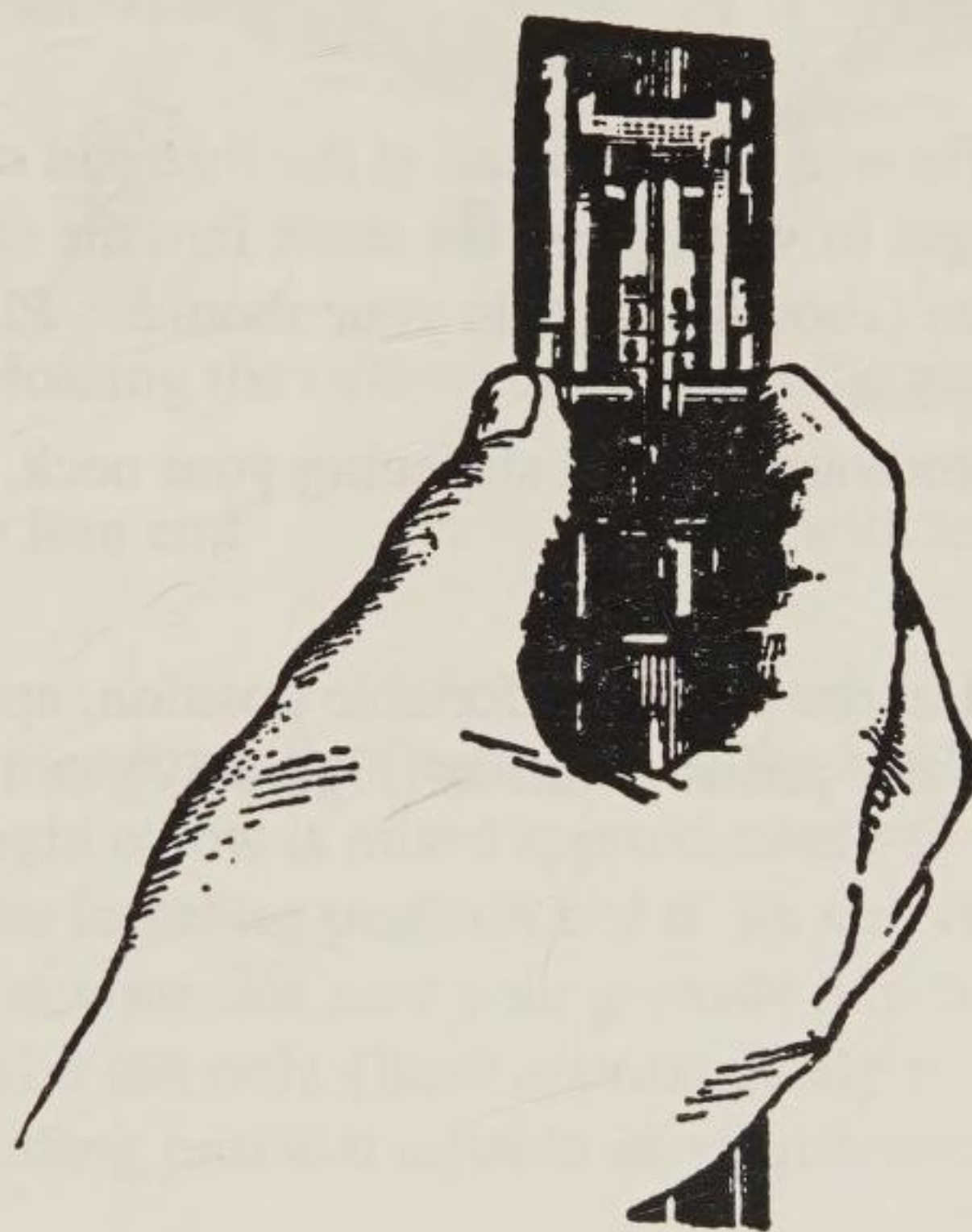
**108.** The rifle is fired on command or independently, depending on the assigned mission and the situation.

The command for commencing fire includes: identification of the firer, the target, the sight setting, and aimpoint. For example: **"Private Ivanov (or rifleman so-and-so), at the observer, four, base of target-fire," "Squad, at the column, five, at the waist-fire."**

When firing at targets at ranges up to 300 meters, the sight setting and aimpoint need not be indicated. For example: **"Riflemen, at the attacking infantry-fire."** On this command the rifleman conducts fire with the rear sight set at 3 or "II," and selects the aimpoint independently.

**109. Conducting fire (the shot)** includes setting the rear sight, placing the selector on the required type of fire, laying, aiming, squeezing the trigger, and holding the rifle during the act of firing.

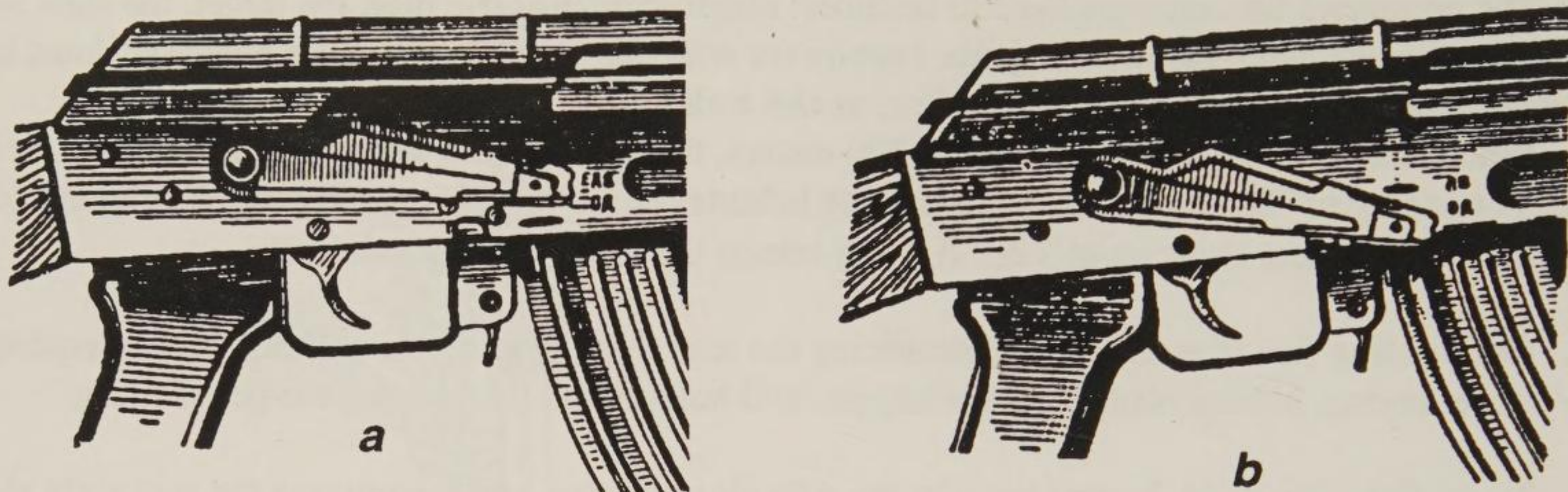
**110. To set the rear sight,** having brought the rifle close to your body, compress the rear sight slider latch with the thumb and index finger (Figure 57) and move the slider to align its front edge with the scribe mark under the appropriate number on the sight leaf.



**Figure 57.** Setting the rear sight



**111. To set the selector** on the required form of fire (Figure 58), pressing with the right thumb on the selector lug, rotate the selector downward: to the first detent (**AB**) for the conduct of automatic fire, and to the second detent (**OA**) for semi-automatic fire.



**Figure 58.** Setting the selector on the necessary form of fire

a - for automatic fire

b - for semi-automatic fire

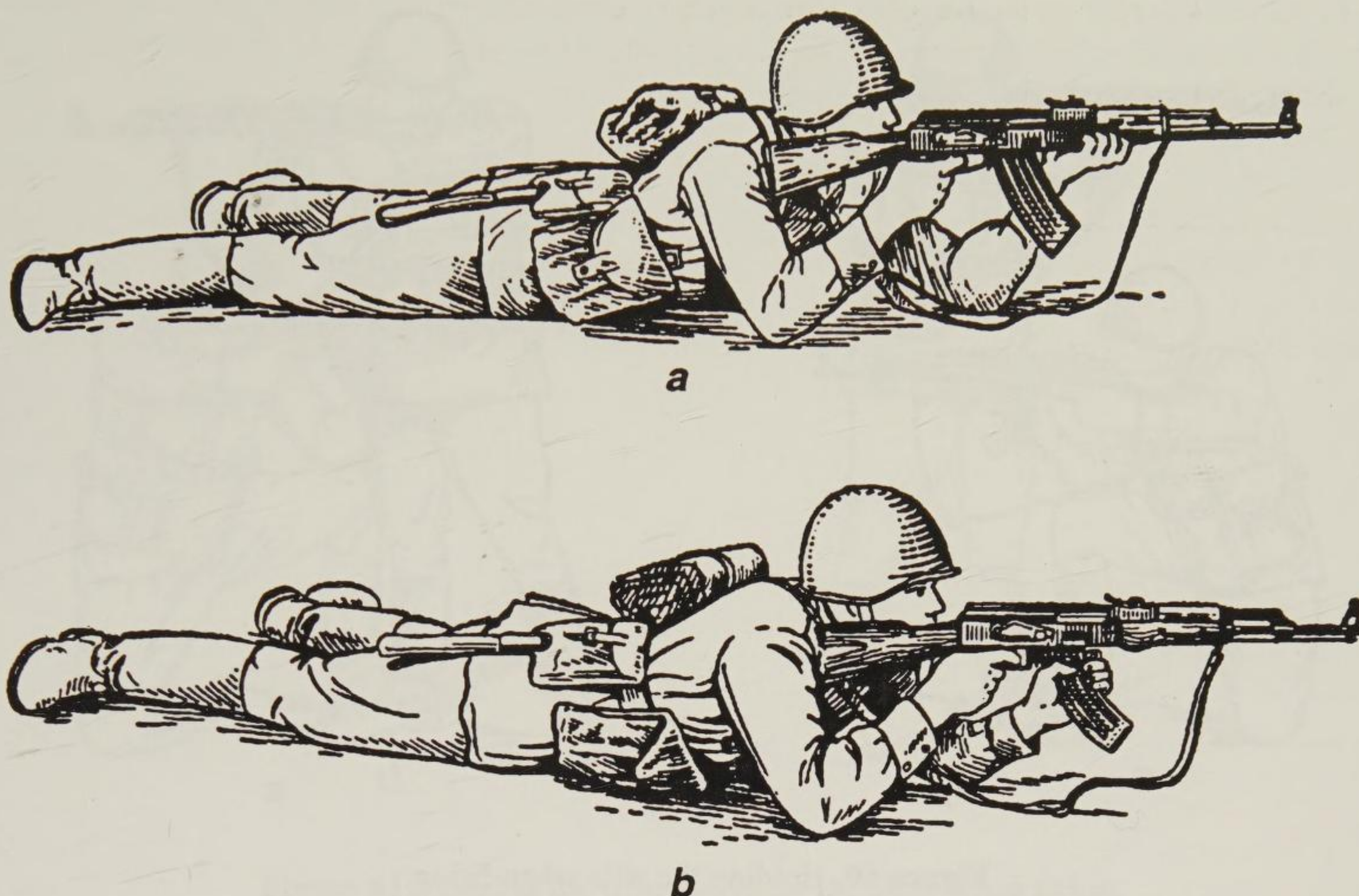
**112. To lay the rifle,** hold the rifle with the left hand at the fore end or magazine and the right hand on the pistol grip. Keeping the target in view, press the stock into the shoulder so that you feel complete contact of the entire butt plate (shoulder rest) in your shoulder. Place the index finger of the right hand on the trigger up to the first joint.

Leaning your head slightly forward and not stiffening your neck, move your right cheek up against the stock.

Your elbows should be:

- placed on the ground in the most comfortable position, approximately a shoulder's width apart for firing from the prone position (Figure 59), or standing or kneeling from an entrenchment;





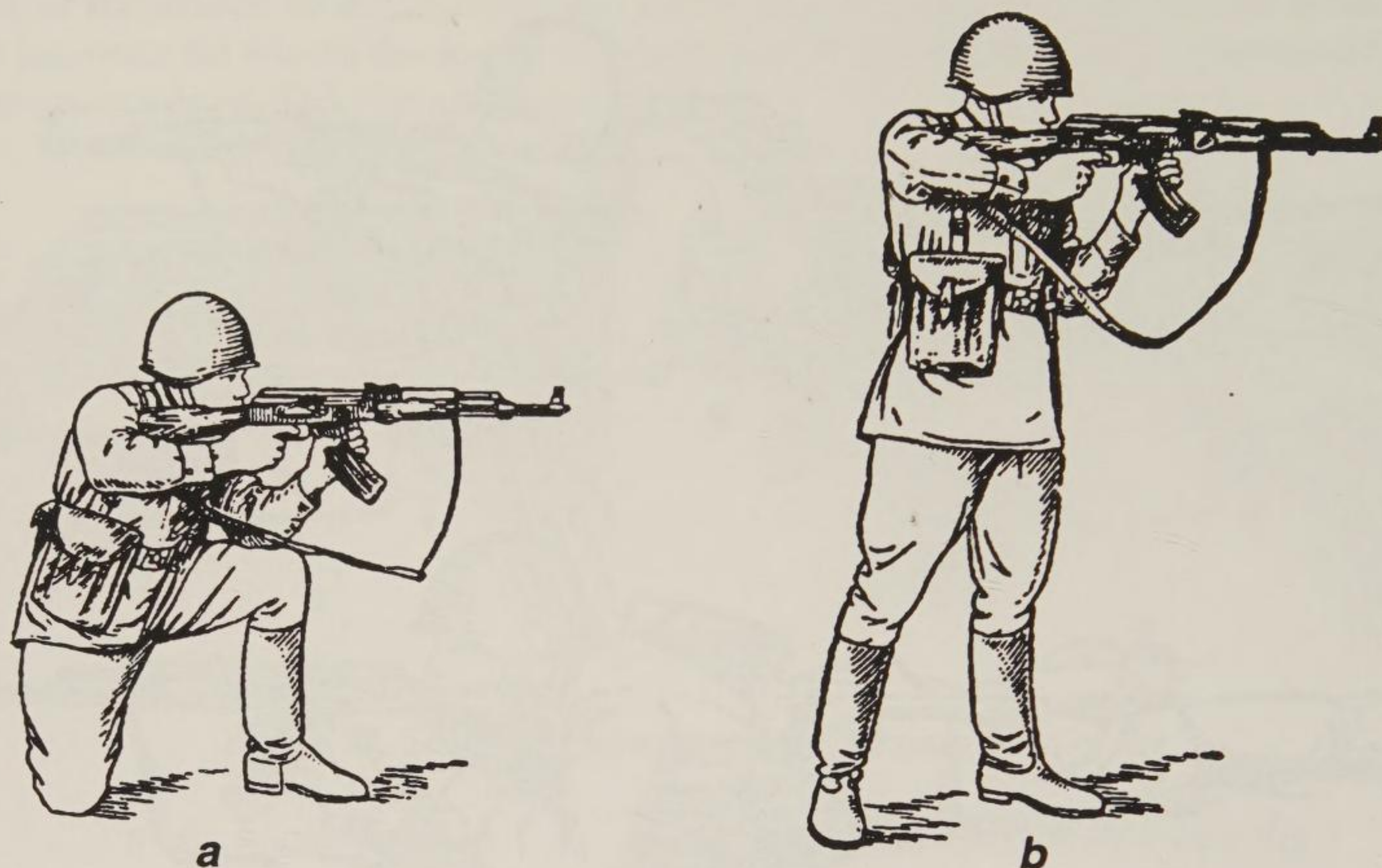
**Figure 59.** Holding the rifle when firing in the prone position:

a - with left hand at the fore end

b - with left hand on the magazine

- the left elbow is positioned on the fleshy part of the left leg near the knee or somewhat in front of it, and the right elbow is raised approximately to shoulder level (Figure 60a) **when firing from the kneeling position not in an entrenchment;**
- press the left elbow to your side near your grenade pouch if you are holding the rifle by the magazine, and raise the right elbow approximately to shoulder level (Figure 60b) **for firing from the standing position outside of an entrenchment.**





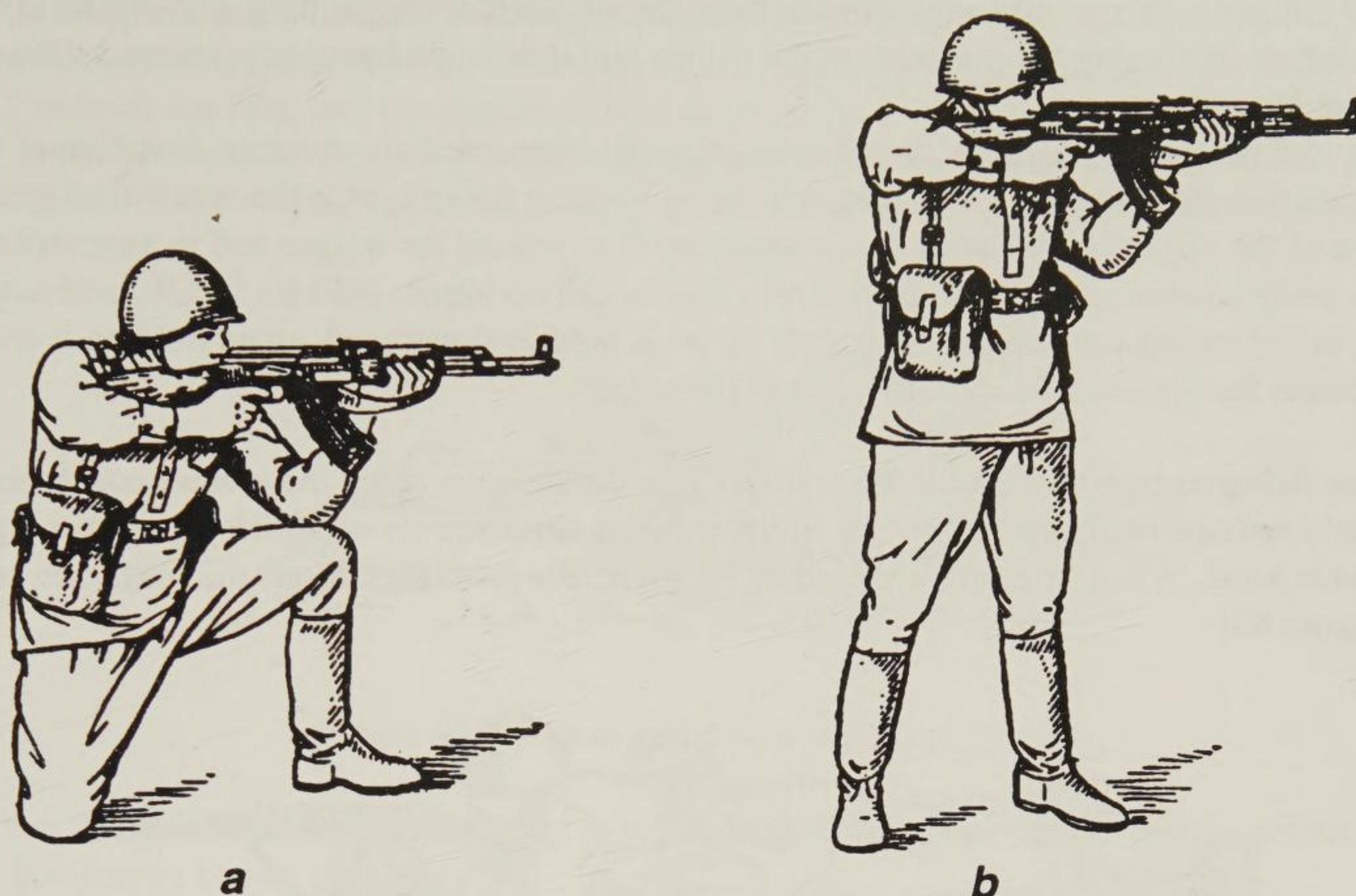
**Figure 60.** Holding the rifle when firing:

a - in the kneeling position

b - in the standing position

If the sling is used for a steadier hold when laying the rifle for firing, pass it under the fist of the left hand so that it presses the hand toward the fore end (Figure 61).





**Figure 61.** Holding the rifle and using the sling when firing:

a - in the kneeling position

b - in the standing position

**113. To aim,** close the left eye and look across the rear sight aperture with the right eye at the front sight so that the front sight is centered in the aperture and its top is level with the upper plane of the rear sight aperture (Figure 62).



**Figure 62.** Proper sight alignment

Holding your breath on an exhale, and keeping your elbows and body still, move the properly aligned front and rear sights to the aimpoint, while simultaneously squeezing the trigger with the first joint of the right index finger.

When taking aim, ensure that the rear sight aperture remains in the horizontal position.

**114. To release the hammer,** hold the rifle in the left hand by the fore end or magazine and the right hand on the pistol grip. Pressing the rifle back toward your shoulder, continue to exert smooth pressure on the trigger until the hammer is released from the sear notch, that is, until the rifle fires.



If the aligned sights significantly deviate from the aimpoint during aiming, correct the lay without increasing or decreasing the pressure on the trigger and then again increase pressure on the trigger until the shot is fired.

When the hammer is released, do not be particularly concerned about minor deviation of the aligned sights from the aimpoint. As a rule, striving to squeeze the trigger at the moment of greatest coincidence of the aligned sights with the aimpoint leads to jerking the trigger and to an errant shot. If a rifleman, while squeezing on the trigger, senses that he can no longer hold his breath, without decreasing or increasing pressure on the trigger he takes another breath and, again holding it on an exhale, corrects the lay and continues to squeeze the trigger.

**115. When firing in bursts,** hold the stock firmly into the shoulder, keep the elbows positioned, and maintain the front and rear sight alignment on the selected aimpoint. Re-establish the correct sight picture after each burst. When firing from the prone position, it is permitted to rest the magazine on the ground (Figure 63).



**Figure 63.** Firing in the prone position with the magazine resting on the ground

### Ceasing fire

**116.** A cease fire can be temporary or permanent.

**117. For a temporary cease fire** the command “**Stop**” is given, and when firing on the move—“**Cease fire.**”

Upon hearing these commands, the rifleman stops squeezing the trigger, places the rifle on safe and, if necessary, replaces the magazine.

**118. To replace the magazine:**

- remove the magazine from the rifle;
- install a loaded magazine.

If all the ammunition in a magazine has been expended, after loading a fresh magazine into the rifle take the rifle off of safe, draw the bolt carrier handle rearward to stop by the handle, release it, and once again place the rifle on safe.



**119. For a complete cease fire,** after the commands "Stop" or "Cease fire," the command "Unload" is given. On this command, the rifleman places the rifle on safe, draws the rear sight slider back and sets it on "Π," unloads the rifle, and in addition, if the rifle has a folding stock, folds the stock. When firing from the prone position, holding the rifle with the right hand by the fore end and hand guard, drop the stock (rear portion of the receiver) to the ground, and place the muzzle portion on the left forearm (Figure 64).



**Figure 64.** Position of the rifle after ceasing fire

When firing from an entrenchment, after unloading the rifle can be placed on the trench parapet with the bolt carrier handle downward.

**120. To unload the rifle:**

- remove the magazine;
- take the rifle off safe;
- slowly draw the bolt carrier to the rear by the handle, extract the cartridge from the chamber, and release the bolt carrier;
- squeeze the trigger (release the hammer from the sear notch);
- place the rifle on safe, grasp it by the sling if the firing was being conducted from the standing position, or place it on the ground if the firing was being conducted from the prone or kneeling position;
- pick up the cartridge extracted from the chamber.



**To empty the magazine of cartridges:** grasp the magazine in the left hand with mouth upward, locking lug toward you. With the right hand, using a cartridge, move the cartridges away from you one at a time, removing them from the magazine (Figure 65).



**Figure 65.**  
Stripping the magazine of cartridges

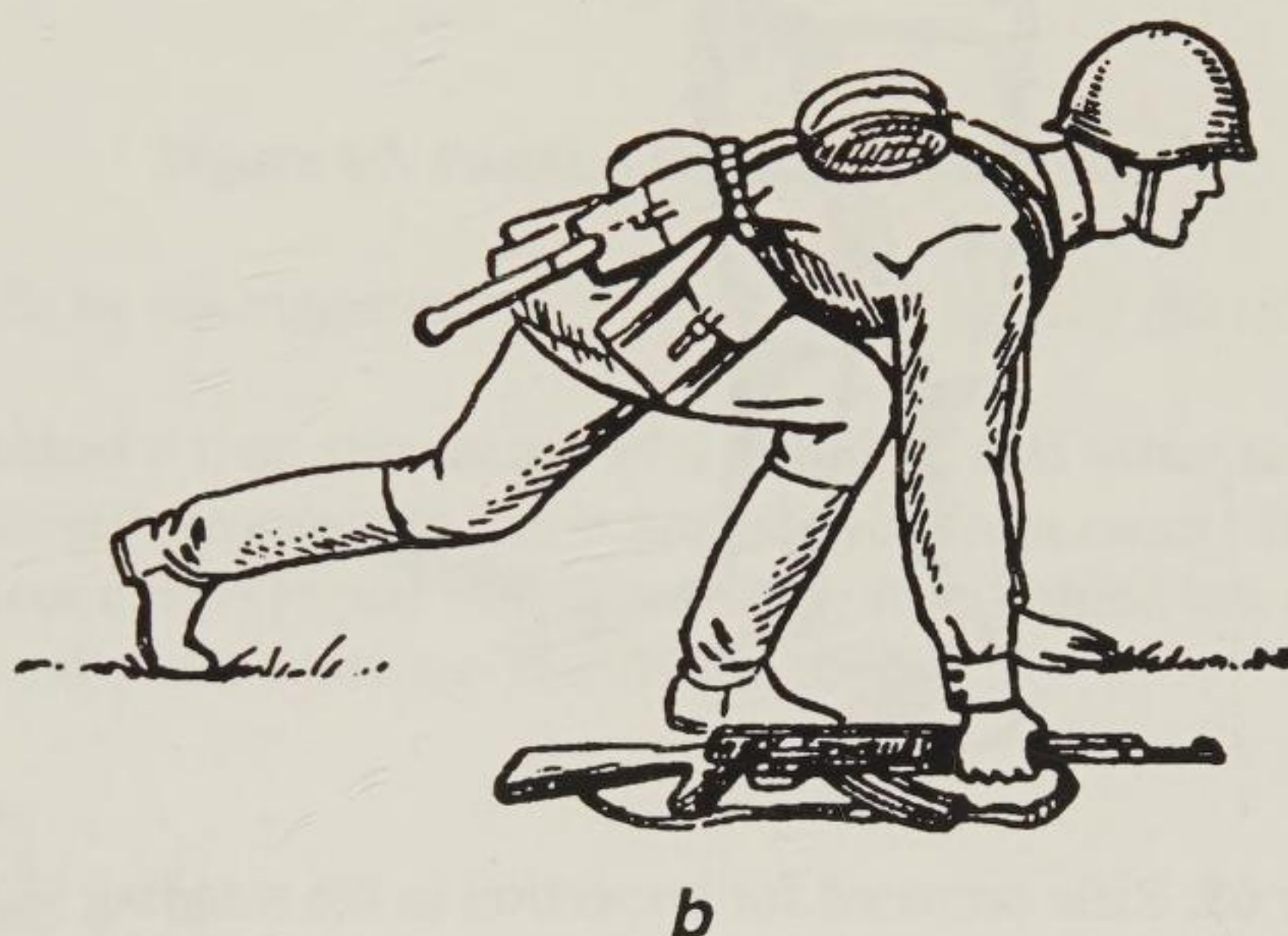
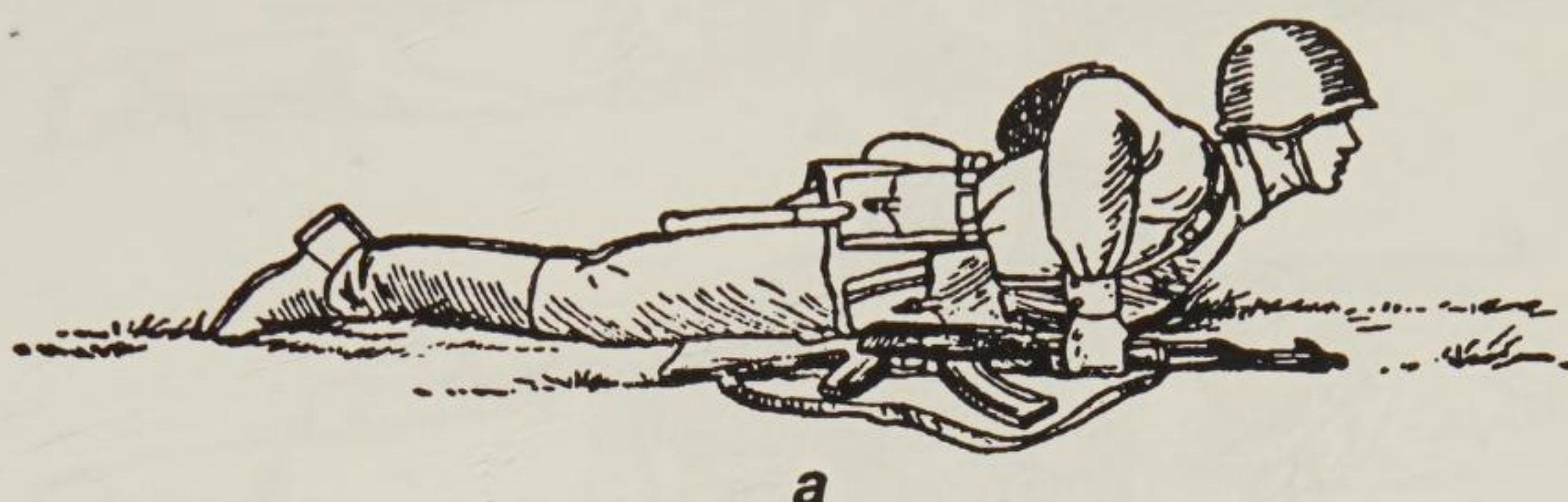
**121.** To fold the stock, hold the rifle in the left hand by the fore end and hand guard. With the right hand, position the shoulder rest parallel to the arms. Pressing with the right hand on the arms near the receiver, depress the detent button with the right thumb and, pressing with the palm on the arms, fold them downward (Figure 66). Placing the rifle in the right hand, fold the shoulder rest toward the fore end with the left hand.



**Figure 66.**  
Folding the stock



**122. To stand up**, bring both hands up to chest level, holding the rifle by the fore end and hand guard in the right hand. Simultaneously bring both legs together (Figure 67a), sharply straighten your arms, raise your chest from the ground, and bring the right (left) leg forward (Figure 67b). Quickly stand up and, if necessary, initiate movement.



**Figure 67.** Execution of the command "Stand"

a - position of the rifleman before standing

b - bringing the right (left) leg forward

**123.** After unloading, if necessary, the commander gives the command: **"Prepare weapons for inspection."**

Upon receiving this command:

- in the prone position: remove the magazine and place it alongside the rifle with mouth toward you. Take the rifle off safe, draw the bolt carrier back by the bolt handle and rotate the rifle slightly to the left. After the commander inspects the chamber and magazine, release the bolt carrier forward, release the hammer from the sear notch (squeeze the trigger), place the rifle on safe, insert the magazine in the rifle, and assume the position indicated in paragraph 118.
- in the standing position with the rifle at "sling arms": assume the position of readiness to fire from the standing position. Hold the rifle by the left hand from below on the fore end, remove the magazine with the right hand, and place the magazine in the left hand with follower



upward, convex portion away from you. Press the magazine to the rifle's fore end with the fingers of the left hand. Take the rifle off safe, draw the bolt carrier to the rear, and rotate the rifle slightly to the left (Figure 68).



**Figure 68.** Rifle prepared for inspection in the standing position

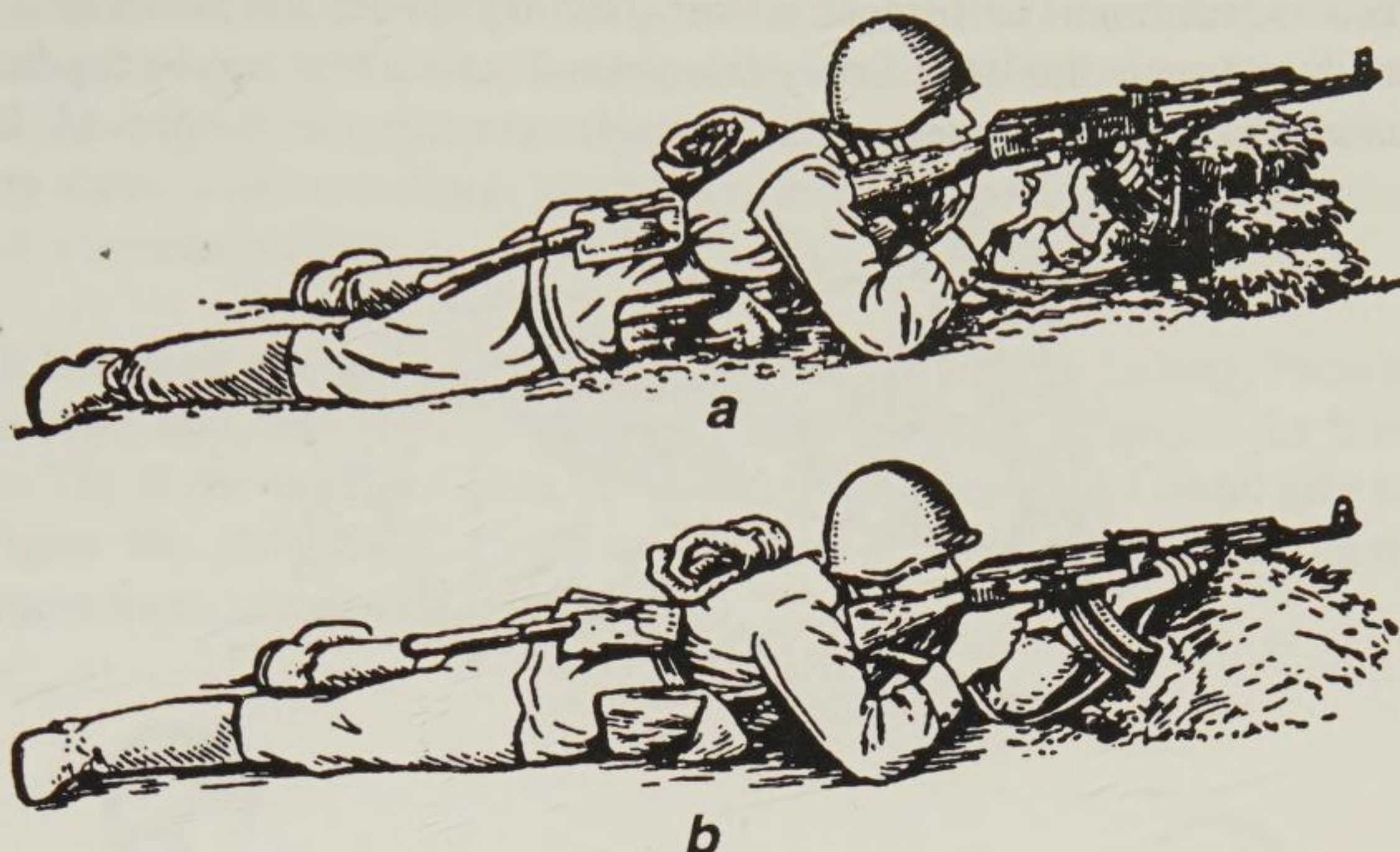
After the commander inspects the chamber and magazine, release the bolt carrier forward, release the hammer from the sear notch (squeeze the trigger), place the rifle on safe, insert the magazine into the rifle, and place the rifle at "sling arms."

#### **Methods of fire from a rest and from behind cover**

**124.** Depending on the height of the rest or cover, the rifleman establishes a prone, kneeling, or standing firing position.

**125. For firing from a rest** place the rifle's fore end on the rest and hold it in the left hand by the magazine or fore end, with the right hand on the pistol grip (Figure 69). Cover a hard rest with straw, a rolled poncho, folded greatcoat, and so on, to soften it.



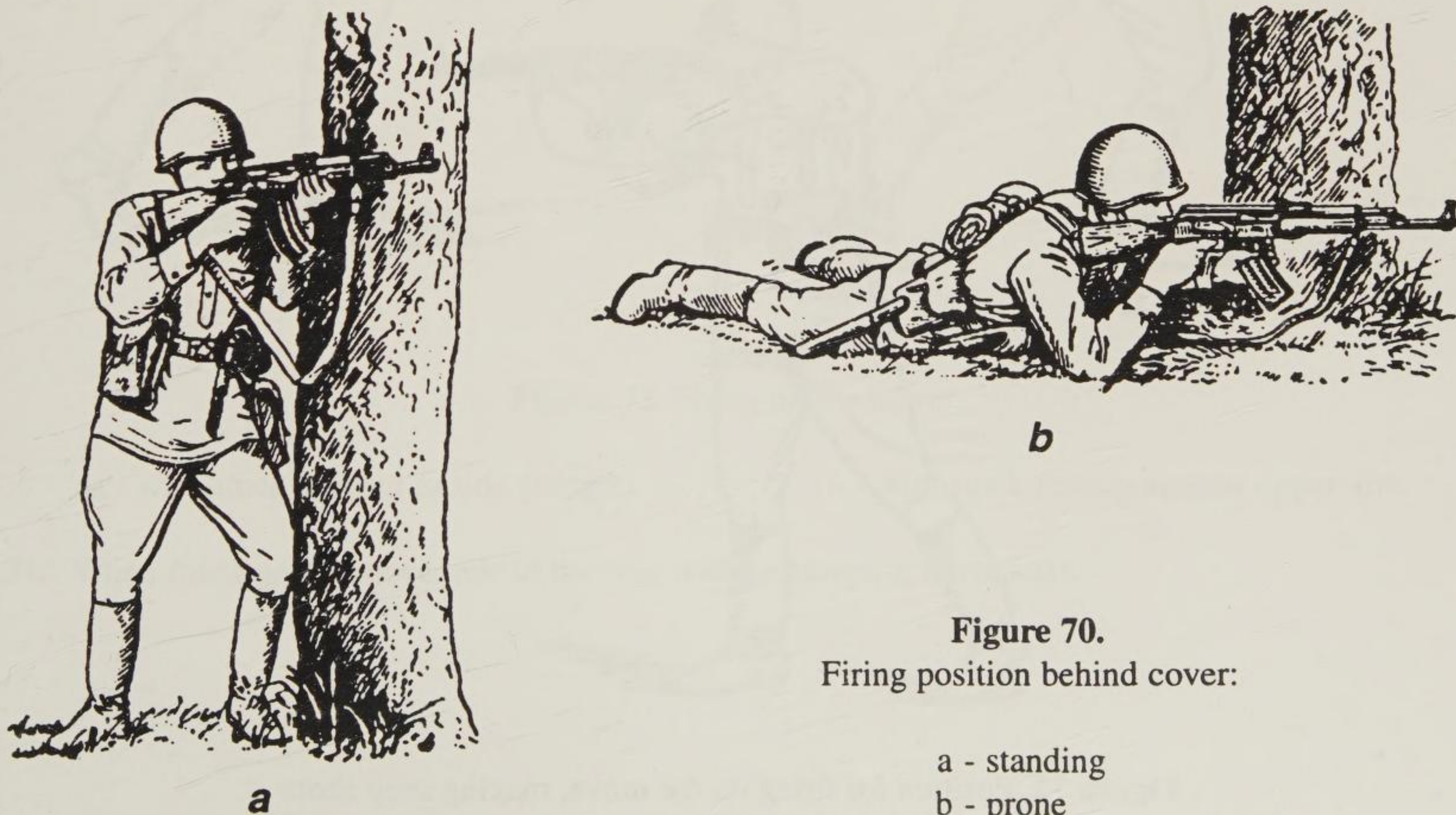


**Figure 69.** Position for firing from a rest:

a - holding the rifle by the magazine

b - holding the rifle by the fore end

**126. For firing from behind a tree, the corner of a building, and other forms of cover:** take up a firing position and lean toward the cover so that it protects you from enemy fire. Hold the rifle the same as when firing without cover (Figure 70). When firing from behind low cover (a revetment for firing prone, small rise, mound), take a position behind the cover.



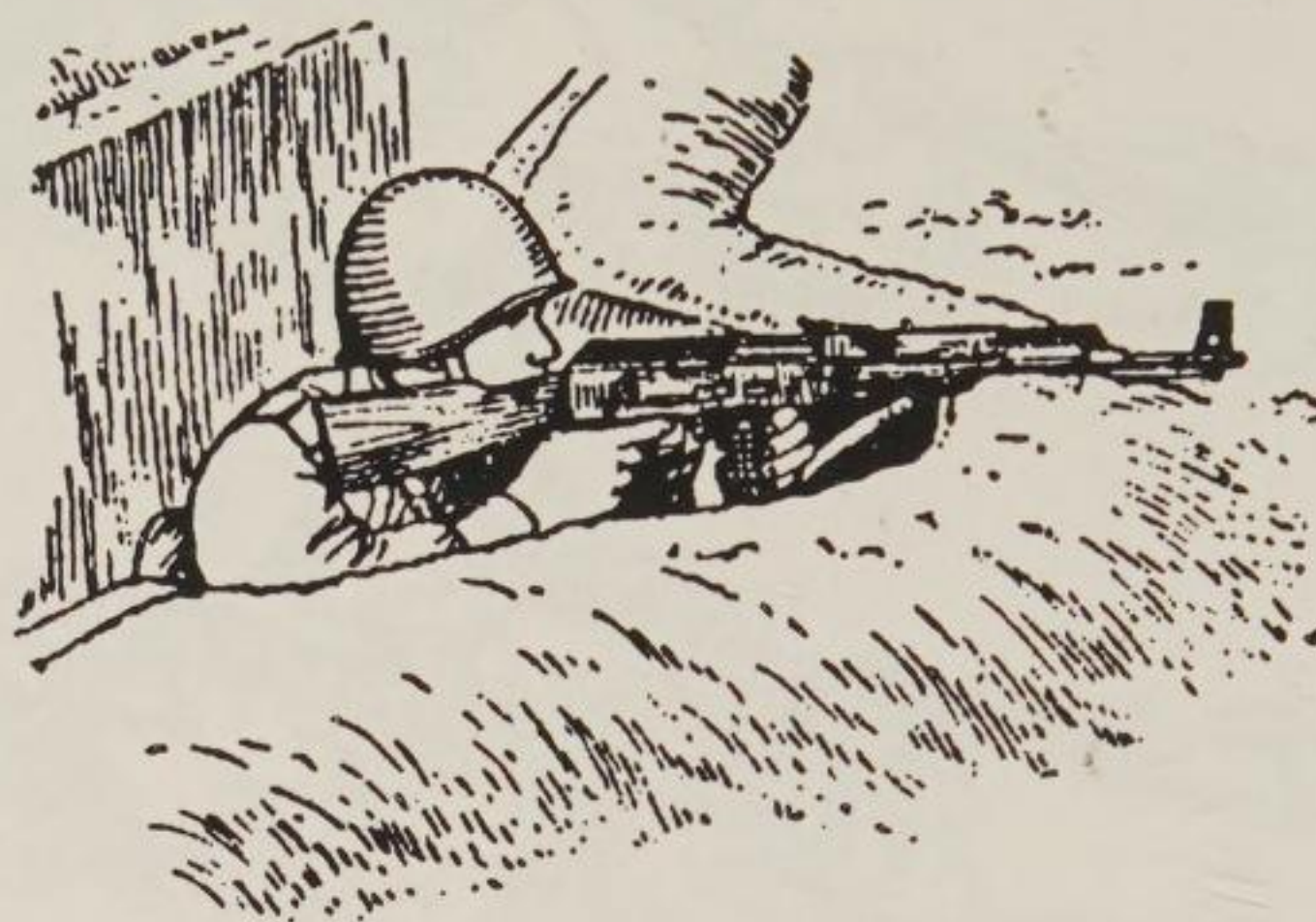
**Figure 70.**  
Firing position behind cover:

a - standing

b - prone



**127. For firing from a revetment or trench:** incline the body toward the trench wall, place both elbows on the ground, and press the stock firmly into your shoulder. Fire can be conducted from the rest in the same manner as without the rest, with the magazine resting on the ground (Figure 71).



**Figure 71.** Firing position from a revetment

#### **Methods of fire on the move**

**128.** Firing on the move is conducted by taking snap shots with the rifle or with the stock pressed against the firer's side.

**129. Firing snap shots** is accomplished from short halts or without stopping (Figure 72).



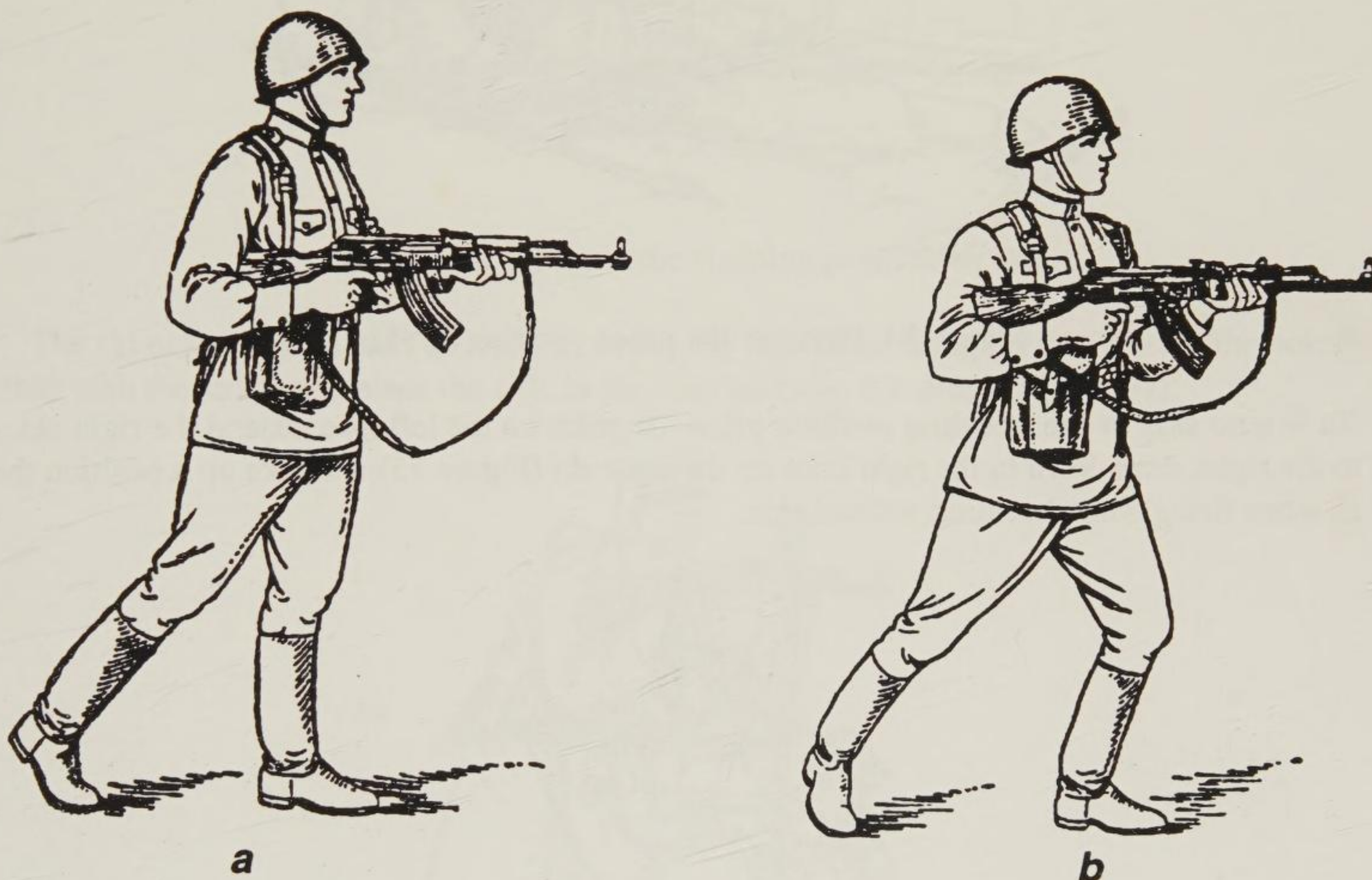
**Figure 72.** Position for firing on the move, making snap shots



**To fire snap shots from a short halt:** Stop, and at the moment the left foot strikes the ground, simultaneously bring the stock to the shoulder (shoulder the rifle). Without putting weight on the right leg, take aim, fire one or two bursts (shots), drop the rifle, and continue moving.

**To fire snap shots without halting:** bring the rifle to the shoulder, point it at the target and, continuing movement, commence firing.

**130. Firing with the stock pressed to the body** is conducted without halting. Press the stock to the right side with the right arm, with the butt of the stock in the armpit or against the front part of the upper arm (Figure 73). If the stock is folded, press the rifle's receiver and pistol grip to the body with the right hand (Figure 56). Hold the rifle with the left hand at the fore end. Point the rifle at the target and, continuing movement, commence firing.



**Figure 73.** Firing on the move:

a - with stock pressed to side (armpit)

b - with stock resting against upper arm

**131.** When firing on the move, reload the rifle without stopping movement.



### Methods of fire on skis

132. The rifle can be fired on skis while stationary (prone, kneeling, standing) or on the move.

133. **To fire on skis in the prone position** grasp the rifle in the right hand, ski poles in the left. Leaving the heels of the skis in place, spread the ski points to the side. Leaning on the poles, drop down on the knees. Lay down, place the ski poles, fastened together, under the elbows (Figure 74) and hold the rifle in the same manner as when firing in the prone position without skis.



Figure 74. Firing in the prone position on skis

134. **To fire on skis in the kneeling position** place the poles on the left side, extend the right ski point to the right, drop down to the right knee on the right ski (Figure 75) and take up a position the same as when firing while kneeling without skis.



Figure 75. Firing in the kneeling position on skis

135. **To fire on skis while standing** place the poles on the left side, extend the right ski slightly with point to the right (Figure 76) and take up a position the same as when firing when standing without skis.





**Figure 76.** Firing in the standing position on skis

The ski poles may be used as a rest to steady the rifle when firing on skis. Fasten the poles together with the straps and place the rifle in the loop made by the straps (Figure 77).

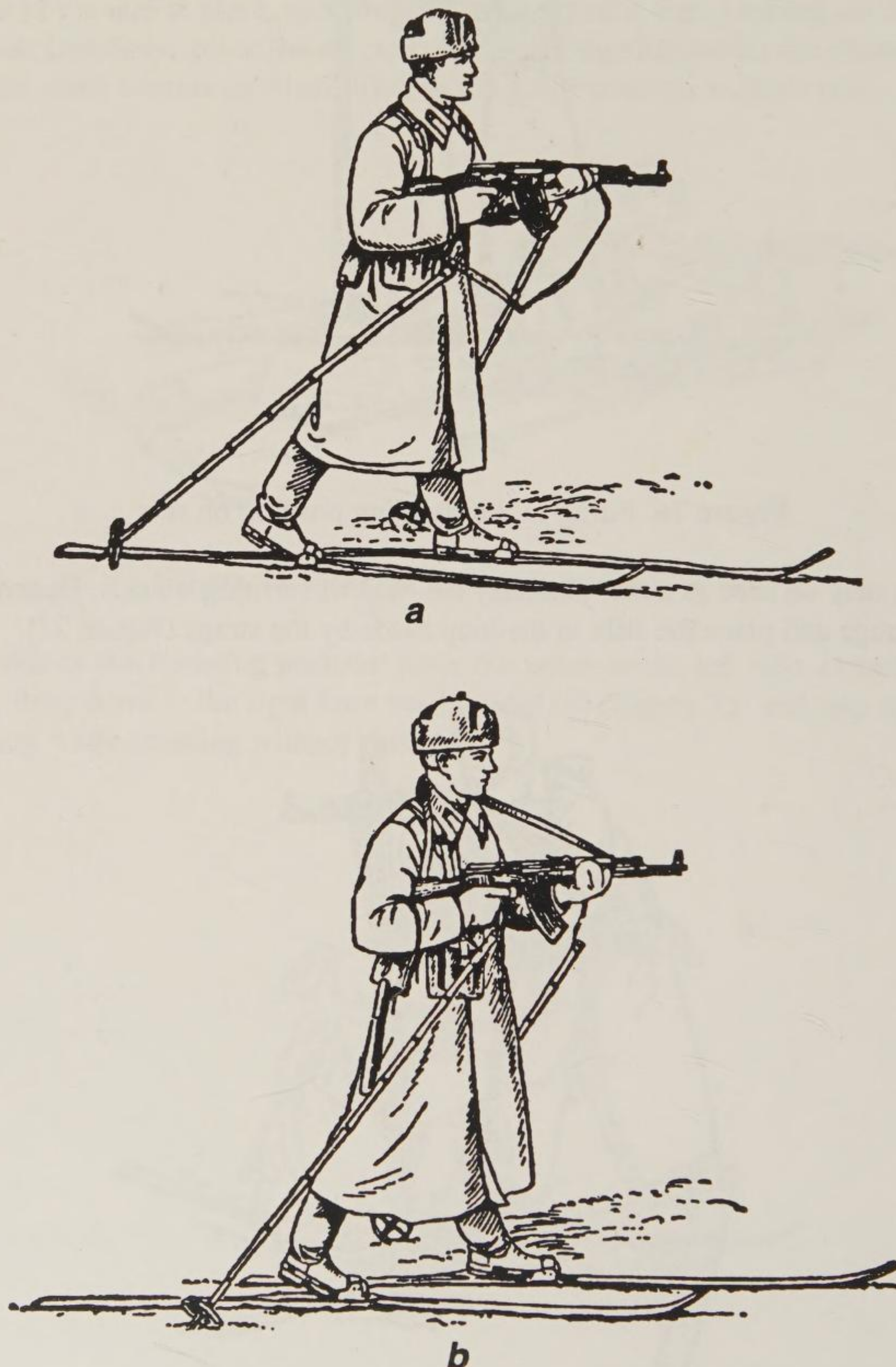


**Figure 77.** Using the ski poles as a rest



**136. To fire while moving on skis** place the pole straps on your wrists. With your right hand, press the stock into your right side under your arm or use your upper arm for a rest. Holding the rifle with the left hand at the fore end, point it at the target. Without stopping movement, open fire (Figure 78).

Firing can also be conducted in this manner with the pole straps secured together on the right or left hand.



**Figure 78.** Firing while moving on skis

a - without the sling

b - using the sling



### Methods of fire during vehicular movement

**137.** To fire from a moving armored transporter, truck, or from amphibious assault vessels, any suitable position is used that ensures the stability of the rifle and safety to adjacent personnel. The methods shown in Figures 79 and 80 may be used to fire from an armored transporter or a stationary truck (or from a short halt). The seat backs and other fixtures inside the cargo compartment of the armored transporter are used as rests for the hand, forearm, side, and legs. The rifle's sling should be placed underneath the fore end.

When firing through a firing port, the rifle's barrel should be extended forward so that the rear sight aperture is positioned 5-7 cm from the side of the vehicle, and the vehicle fixtures do not interfere with the movement of the bolt carrier handle.

When assuming a position for firing over the side of a vehicle, stand with both legs on the floor of the armored transporter, slightly bent at the knees, or with the left knee on the seat (Figure 79c). Slide the muzzle portion of the rifle over the side and, resting the left hand on the side wall, hold the rifle up.



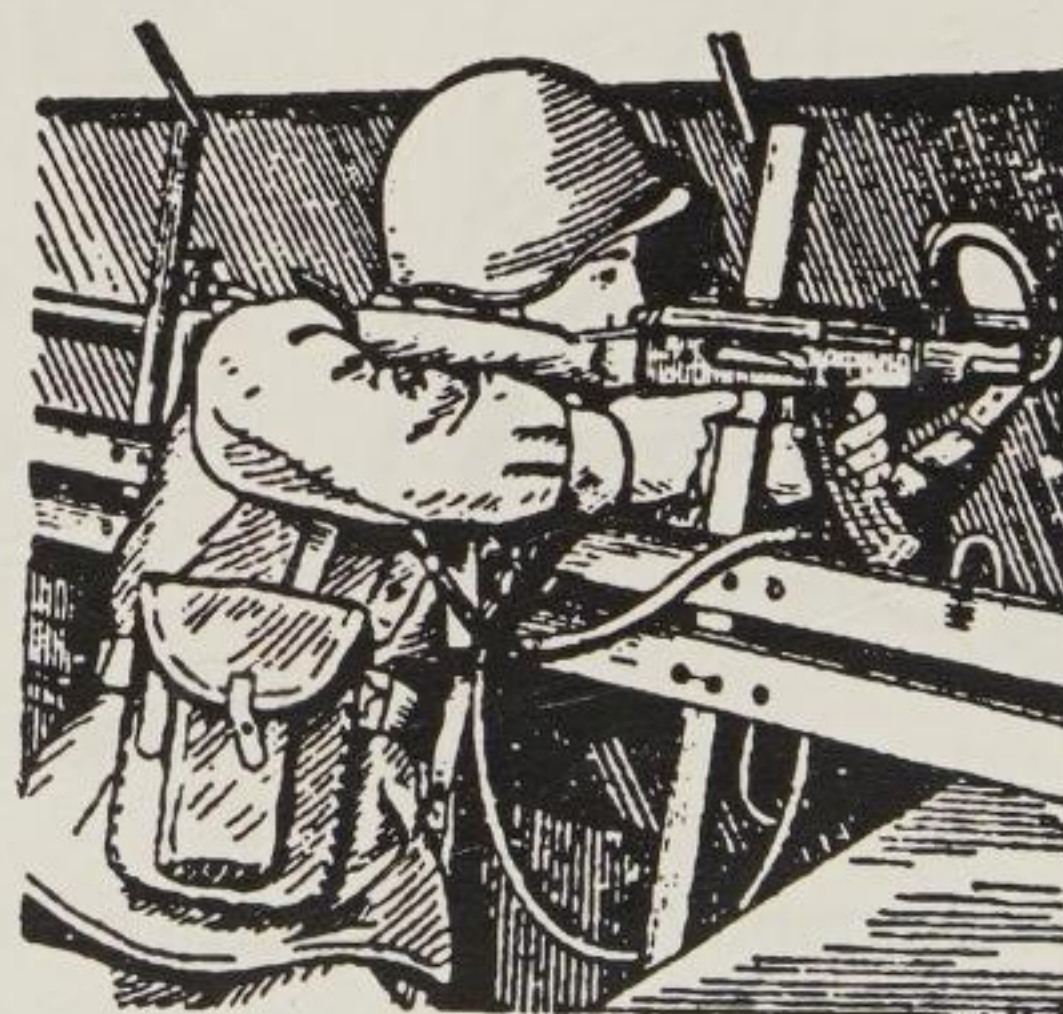
a



b



c



d

**Figure 79.** Firing from an armored transporter:

a - forward  
c - over the side

b - through a firing port  
d - through a firing port



**a****b****c****Figure 80. Firing from a truck:****a - forward****b - over the side****c - to the rear**

### **Methods of fire at aerial targets**

**138.** On open terrain, fire is conducted with the rifle at aerial targets from the prone, kneeling, and standing positions (Figure 81).

To fire from behind local objects, use the local object as a rest to the degree possible and assume a suitable position for firing (standing, crouching, kneeling).

To fire from an armored transporter, the upper firing ports are used or fire is conducted over the sides. The rifleman assumes the most suitable position (standing, crouching, kneeling on the seat), making contact with the forearms or trunk on fixtures inside the armored transporter.



*a**b**c*

**Figure 81. Firing at aerial targets:**

a - prone

b - kneeling

c - standing



139. Firing from a trench (communications trench) at aerial targets is accomplished:

- by resting the left forearm and magazine on the forward wall of the trench (communications trench). Hold the rifle in the right hand by the pistol grip and with the left hand by the magazine, with the stock pressed tightly into the shoulder. If the elevation angle is insufficient, sit down (Figure 82a).
- by resting the back and left leg on the trench walls. Raise the left leg as high as possible and plant the left foot on the front trench wall. Lean back against the rear trench wall and sit slightly. Hold the rifle in the same position as if standing, but rest the left elbow on the thigh of the left leg or slightly forward of the left knee (Figure 82b).

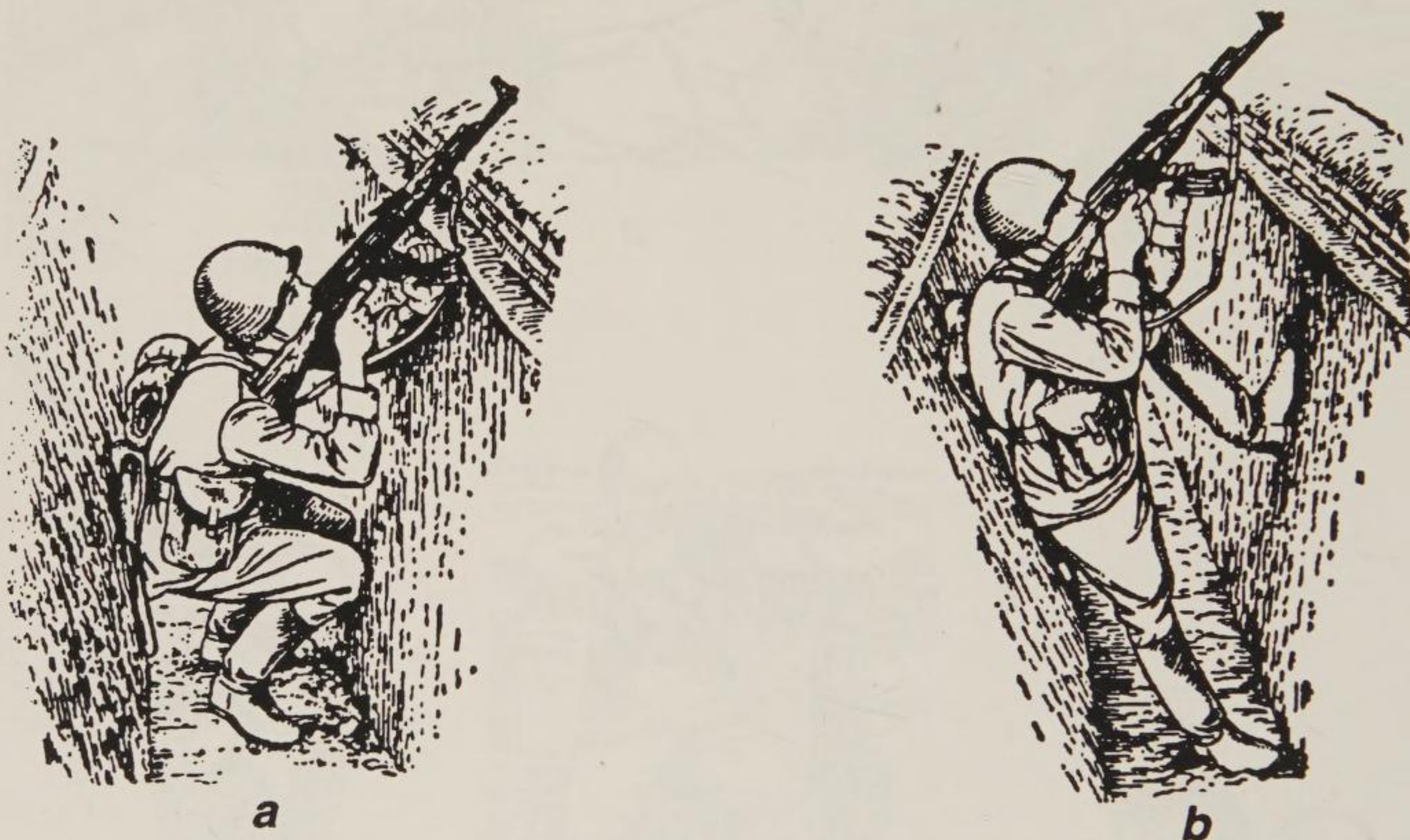


Figure 82. Firing at aerial targets from a trench:

a - resting the rifle's magazine on the front wall

b - without a rest



## Chapter IX

### CONDUCT OF FIRE WITH THE RIFLE

#### General instructions

- 140.** For successful accomplishment of the mission in combat, you must:
- continuously observe the battlefield;
  - quickly and correctly prepare data for firing;
  - skillfully conduct fire at all possible targets in various conditions of the combat situation, both day and night. Use concentrated, sudden fire to defeat group targets and the most important individual targets.
  - observe the results of firing and skillfully adjust it;
  - monitor ammunition expenditure in combat and take measures to be resupplied in a timely manner.

#### Observing the battlefield and target designation

- 141.** Observation is conducted for the purpose of timely detection of the disposition and activities of the enemy. In addition, in combat it is necessary to observe for the commander's signals and signs, and for the results of one's own fire.

If the commander has not issued special instructions, soldiers conduct observation in their assigned firing sector to a depth of 1000 meters.

- 142.** Observation is conducted by the unaided eye. Pay special attention to covered approaches during observation. Examine the terrain from right to left, from near objects to far objects. Conduct the inspection carefully, since insignificant indicators can facilitate detection of the enemy. Such signs might be a flash, a noise, the rattling of the branches of trees or bushes, the appearance of new small objects, changes in the location and form of local objects, and so on.

If binoculars are available, use them only for a more careful study of individual objects or sectors of terrain. Take measures to ensure that the reflection of the binocular lens does not give away your own location.

At night the location and actions of the enemy can be determined by sounds and sources of light. If the terrain in a desired sector is illuminated by a rocket or other source of illumination, quickly inspect the illuminated sector.

- 143.** It is necessary to report immediately any targets detected on the battlefield to the commander, and correctly indicate their location. The target is indicated by an oral report or tracer bullets.

The oral report should be brief, clear, and concise. For example, **"Straight ahead, broad bush, to the left—machine gun;"** **"Reference point 2, two fingers right, under bush—observer."**

When identifying a target with tracers, fire one or two short bursts in the direction of the target.



## Target selection

**144.** The most typical targets for rifle fire are machine gun and gun crews, riflemen, or individual figures who are firing from various positions, and also personnel in trucks, on motorcycles, and so on. In addition, fire is conducted from this rifle at aerial targets. Targets on the battlefield can be stationary, fleeting, and moving.

**145.** As a rule, the rifleman conducts fire in battle as part of a squad or platoon, destroying targets assigned to him by the commander. Therefore he should attentively listen to and precisely carry out all commands.

**146.** If a target is not assigned to the rifleman for destruction in battle, he selects one himself. The first burst should destroy the most dangerous and important targets, for example, a machine gun or gun crew, or enemy commanders or observers. Of two equally important targets, select the closest and most vulnerable first. Upon the appearance during firing of a new, more important target, immediately shift fire to it.

## Sight selection and aimpoint

**147.** For selection of the rear sight setting and aimpoint, it is necessary to determine the range to the target and to consider the external conditions that might influence the range and direction of the bullet's flight. The sight setting and aimpoint are selected with consideration that during firing, the mean trajectory will pass through the center of the target.

As a rule, the rear sight is set at 3 or "II" when firing at ranges up to 300 meters, using the bottom edge or center of the target as an aimpoint if the target is tall (running figures, and so on).

When firing at ranges in excess of 300 meters, the rear sight is set according to the range to the target, rounded to the nearest hundred meters. As a rule, the middle of the target is used for the aimpoint. If the situation does not permit changing the rear sight setting, depending on the range to the target, and up to the limit of battle-sight range, fire with the rear sight set at battle-sight setting, and aim at the lower edge of the target.

**148.** **The range to targets is determined by visual estimation.** The range to targets and local objects is determined by portions of terrain that have firmly registered themselves in visual memory, by degree of visibility, and by the apparent magnitude of targets (objects), and also by a combination of both methods.

**During determination of range by visual estimation,** some familiar distance that has become firmly entrenched in visual memory is required, for example 100-, 200-, or 300-meter sectors, mentally overlaid from you to the object (target).

**During determination of range by degree of visibility and apparent magnitude of objects (targets),** compare the visible magnitude of the target with the visible sizes of given targets at specific distances that have been imprinted in your memory.

If a target is detected close to an orientation point or local object, the range to which is known, consider its distance from the orientation point during the estimation of the range to the target.

The range to illuminated targets is determined in the same fashion at night as during the day.



- 149.** During the determination of range by visual estimation, take the following into consideration:
- with an increase in range from the rifleman, the apparent magnitude of a sector of terrain gradually diminishes in perspective;
  - hollows, ravines, brooks, and so on, that intersect the axis to the local object or target conceal (reduce) the range;
  - small objects (bushes, rocks, individual figures) seem farther away than larger objects (forest, hill, column of troops) at the same range;
  - bright-colored objects (white, orange) seem closer than dark-colored objects (blue, black, brown);
  - a single-color, single-form terrain background (meadow, snow, plowed field) sets objects located on them apart and brings them closer if they are of a different color, and, conversely, a motley, variegated terrain background masks objects located on them and makes them seem farther away;
  - distances seem magnified on an overcast day, in rain, at dusk, in fog, and, conversely, distances seem reduced on a bright sunny day;
  - visible objects seem to be closer in hilly terrain.
- 150.** A significant deviation of external conditions from tabular (normal) conditions changes the range of the bullet or deflects it to the side from the plane of fire. An air temperature of  $+15^{\circ}\text{C}$  [ $59^{\circ}\text{F}$ ], absence of wind, above-sea-level elevation, and gun-target angle of not more than  $15^{\circ}$  are considered tabular firing conditions.
- 151.** Deviation of the air temperature from tabular ( $+15^{\circ}\text{C}$ ) causes a change in the range of the bullet's flight, increasing it during summer conditions and reducing it in winter. The range of the bullet is increased insignificantly during summer firing conditions; therefore do not make a sight adjustment or change in aimpoint. The range of the bullet during winter firing (in low temperature conditions) decreases by a significant magnitude (50-100 meters) at ranges above 400 meters. Therefore it is necessary to select an aimpoint on the upper edge of the target during air temperatures above  $-25^{\circ}\text{C}$  [ $-13^{\circ}\text{F}$ ], and increase the sight setting by one mark in air temperatures below  $-25^{\circ}\text{C}$ .
- 152.** Corrections in the sight setting for increasing elevation above sea level and for the gun-target angle are considered only when firing in mountains, if the range to the target exceeds 400 meters.
- 153.** A crosswind significantly influences the flight of the bullet, pushing it to the side. Correction for a crosswind is computed by shifting the aimpoint in target figures or in meters. The calculation of aimpoint shift is made from the middle of the target toward the side from which the wind is blowing.



**154.** The magnitude of correction for a moderate crosswind (4 m/sec) in meters and human forms is indicated by the following table.

Firing range in meters	Moderate (4 meters per second) 90° crosswind	
	Correction	
	in meters	in human forms
100	-	-
200	.2	.5
300	.4	1
400	.8	1.5
500	1.4	3
600	2.0	4

Double the tabular correction for a heavy wind (8 meters/second) blowing at right angles to the direction of fire. Halve the tabular correction for a weak wind (2 meters/second) or moderate wind blowing at an acute angle to the direction of fire.

### When to commence firing

**155.** The moment for opening fire is determined by the commander's command "**Fire.**" When firing is being conducted independently, the timing depends on the situation and the position of the target.

The most favorable moments for commencing fire are: when the target can be defeated suddenly from close range; when the target is clearly visible; or when the target is clustered, exposes a flank, or stands up to full height.

A sudden fire attack on the enemy, especially from the flank, has a stunning effect and inflicts a greater defeat on him.

### Conduct of fire, observation of results, and adjustment

**156.** When conducting fire, the rifleman should attentively observe the results of his fire and adjust it.

Observation for the results of fire is conducted by ricochets, bullet tracers, and enemy conduct.

Adjustment of fire is accomplished by shifting the aimpoint in height or lateral direction or changing the rear sight setting. The aimpoint is shifted by the magnitude of deviation of the ricochets or tracers to the side opposite their deviation from the target (Figure 83). If the range deviation from the target exceeds 100 meters, the rear sight setting should be changed by one graduation. To adjust fire by tracers, it is necessary to fire with conventional and tracer bullets in a relationship of three conventional rounds to one tracer round.



**167.** When the target is moving at an acute angle to the plane of the firer, the lead selected for the tracking method is one-half that indicated in the table. The lead selected for the target anticipation method is the same as in the table.

**168.** The employment of tracer bullets when firing at moving targets ensures the best observation of the results of firing, and the possibility of adjusting the lead.

**169.** Fire at enemy personnel in armored transporters, trucks, or motorcycles is conducted with conventional and armor-piercing incendiary bullets (at a ratio of 1:1, or other ratio depending on the availability of cartridges with the indicated projectiles).

### **Firing at aerial targets**

**170.** Rifle fire at aircraft and parachutists is conducted as a part of the squad or platoon at ranges up to 500 meters with the rear sight set on 3 or "Π."

Open fire on aircraft only on the commander's order, and at parachutists on command or independently.

Fire at aircraft with armor-piercing incendiary bullets, and in their absence—with conventional bullets. Fire at parachutists with conventional ball ammunition. Use tracer bullets for adjusting fire.

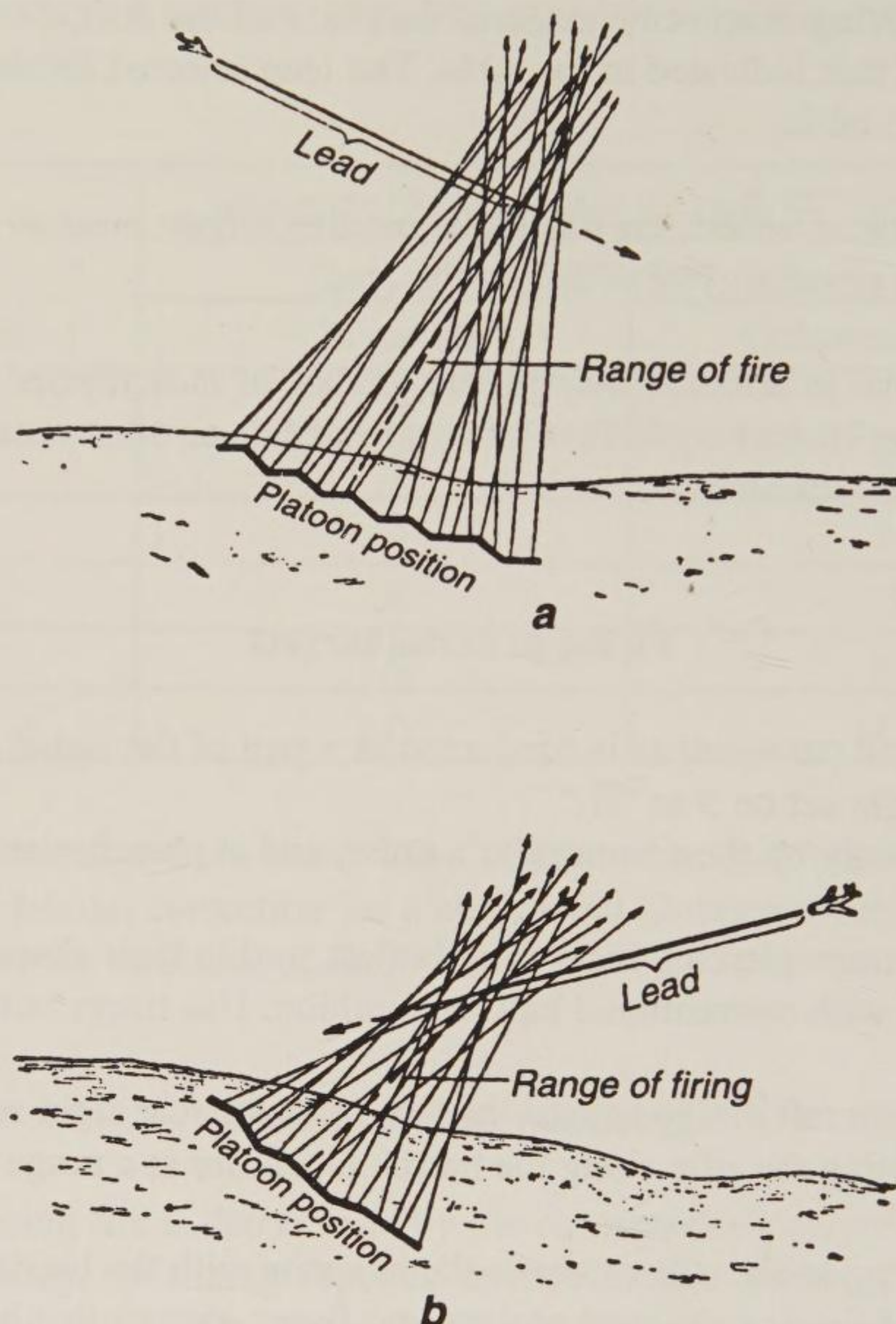
**171.** Fire continuously at aircraft diving toward the firer with the rear sight set at 3, aiming at the front portion of the target or sighting the rifle along the barrel. Open fire at a range of 700 to 900 meters.

**172.** Fire at an aircraft flying to the side or above the rifleman with the barrier or tracking method.

The barrier method of fire is employed against low-flying aircraft that have a speed greater than 150 meters/second [335 miles/hour].

During the conduct of fire by the **barrier method**, the fire of the squad or platoon is concentrated on command of the commander on the movement axis of the approaching aircraft (Figure 84). The rifleman brings his rifle to the axis indicated in the command, holds it at an elevation angle of 45°, and opens fire, maintaining his rifle on the assigned axis. Firing continues until the aircraft departs the zone of fire. If the rifleman clearly sees his tracers near the target, without ceasing fire, he is permitted to move his rifle toward the target in order to bring his tracers into the target.





**Figure 84.** Barrier fire at an aircraft

- a - moving along the front of the platoon's position
- b - moving at an angle to the front of the platoon's position

When adjusting fire with tracers, keep in mind that tracers directed at the aircraft appear to the firer to be going above the aircraft and somewhat in front of it.

Conduct fire at slow-flying aerial targets—helicopters, transport aircraft—by the **tracking method**. The lead is determined and calculated in visible target forms. When conducting fire by the tracking method, the rifleman holds the line of aiming in front of the aircraft at the required magnitude of lead and fires a long burst.

**173.** Use the following table for guidance in determining the magnitude of lead when firing at aerial targets.

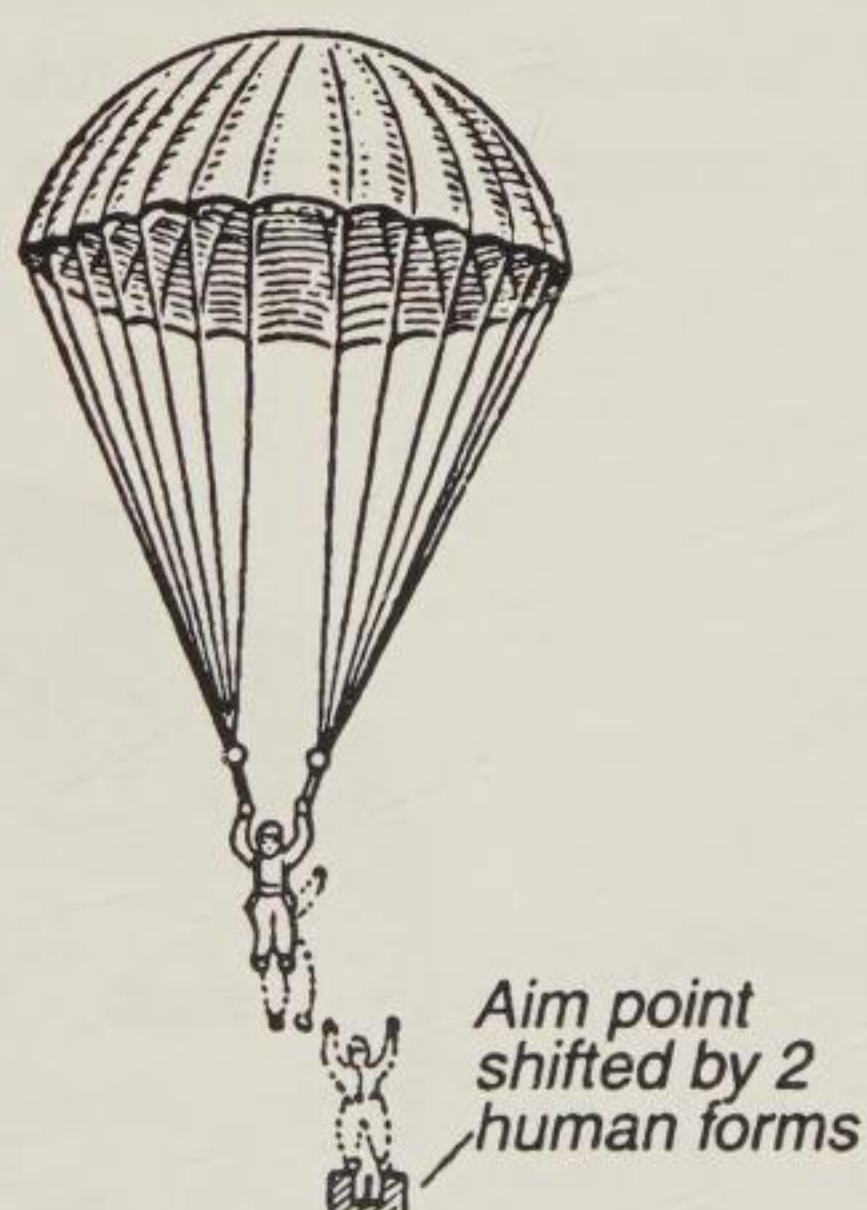


Type of aircraft and speed	Firing range in meters					
	100		300		500	
	Lead					
	in meters	in aircraft fuselages	in meters	in aircraft fuselages	in meters	in aircraft fuselages
Helicopter 50 m/sec	8	1	25	3	50	6
Transport 100 m/sec	15	1	50	3	100	6

**174.** Fire is conducted in long bursts at parachutists. The aimpoint is shifted in the direction of the parachutist's descent at the magnitude indicated in the table below.

Firing range in meters	100	200	300	400	500
Aimpoint shift in parachutist forms	under feet	1	2	3	4

The calculation of lead is made from the middle of the parachutist's form (Figure 85).



**Figure 85.** Shift of aimpoint when firing at parachutist



### **Firing in mountains**

**175.** When firing in mountains at ranges in excess of 400 meters, if the elevation of the terrain exceeds 2000 meters above sea level, the rear sight setting must be reduced by one graduation to account for the reduced air density at altitude. If the elevation of the terrain is less than 2000 meters above sea level, do not reduce the rear sight, but use the bottom edge of the target as the aimpoint.

When firing in the mountains from below to above or from above to below at ranges above 400 meters and gun-target angles of less than  $30^\circ$ , select an aimpoint at the lower edge of the target. At gun-target angles greater than  $30^\circ$ , reduce the rear sight setting appropriate to the target by one graduation.

### **Firing in limited visibility conditions**

**176.** Fire is conducted at illuminated targets at night the same as in the daytime. During the illumination of the terrain, the rifleman, observing the target, quickly sets the rear sight, aims, and fires the shot.

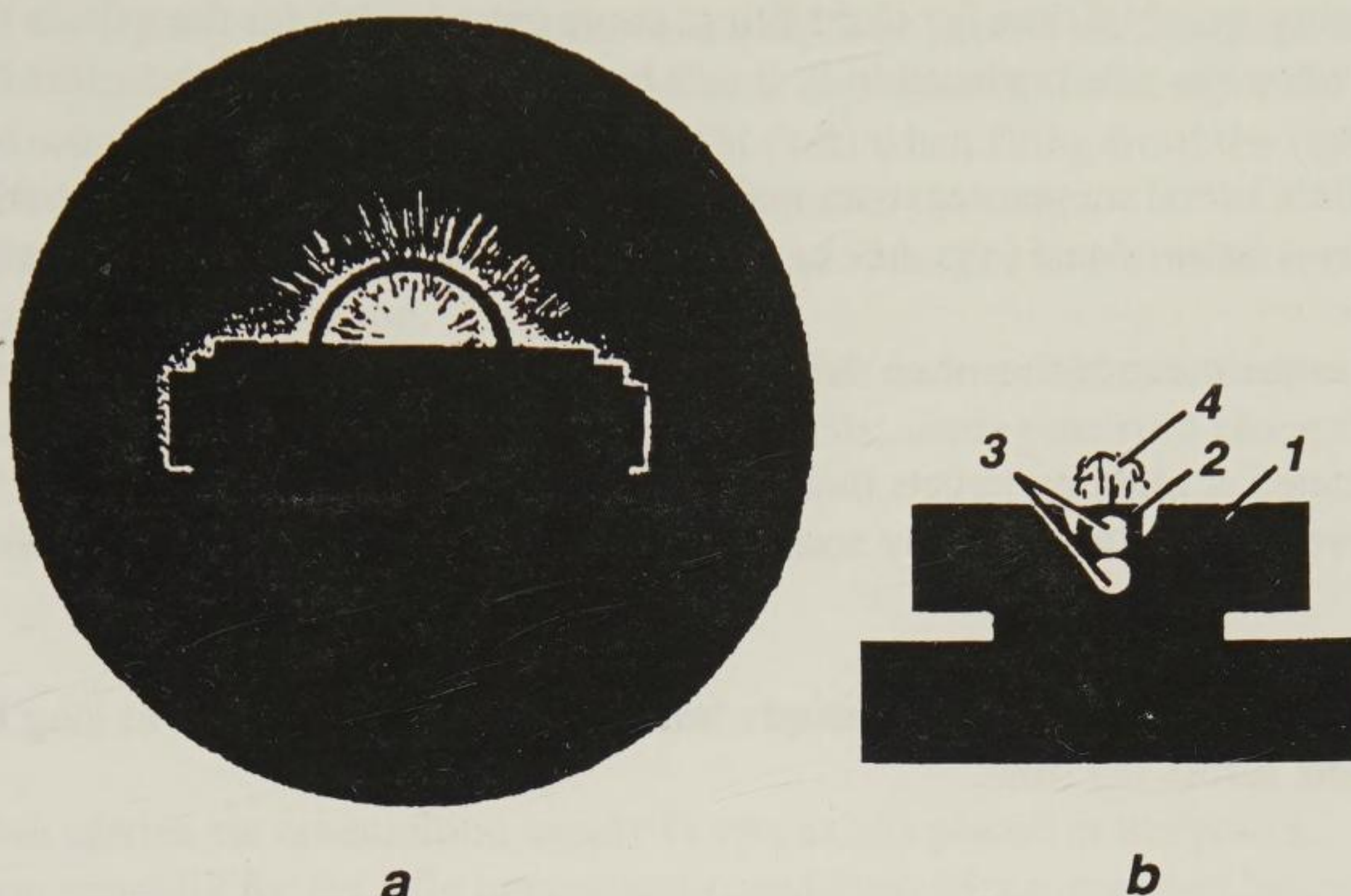
If the terrain is illuminated for only a brief moment (for example, the terrain is illuminated by rockets), fire with the rear sight set at "II." Aim at the center of the target if the range to the target does not exceed 300 meters, and at the upper portion of the target if the range is greater than 300 meters.

Avoid temporary blinding by not looking at the illumination source.

**177.** Fire is conducted at night at targets that reveal themselves by muzzle flashes in long bursts with the sight set at 3 or "II." Open fire at the instant when the muzzle flashes are visible in the center of the front sight guard and on the rear aperture (Figure 86). In those cases when the front sight guard and blade aperture are not visible, point the rifle at the target along the barrel.

If the sighting apparatus is equipped with self-illuminating dots, then align the illuminating dots with the muzzle flashes when aiming the rifle at the target (Figure 86).





**Figure 86.**

Aiming when firing at targets that expose themselves by muzzle flashes:

- a - using the front sight post and rear sight aperture
- b - using the night firing apparatus

- 1 - rear sight
- 2 - front sight post
- 3 - illuminating dots
- 4 - muzzle flashes

**178.** For firing at a target whose silhouette is visible against the background of the sky, the glow of a fire, or snow, point the rifle near the target on the light background and achieve sight alignment (Figure 87). Then, shifting the rifle, select an aimpoint in the middle of the silhouette and open fire.

Fire in long bursts. When firing at targets visible against a dark background (trees, bushes), sight the rifle along the barrel.



**Figure 87.**

Method of aiming at silhouette



**179.** When preparing ahead of time for night firing, carve out a trough for the rifle in the parapet of the trench so that when the rifle is placed in it, it will be pointed at the line where it is believed the enemy will appear.

Limit the rifle's lateral movement to an assigned sector at night with pegs. The rifle can be positioned for height by a layer of turf (e.g., brick, stone, notched board), placed under the pistol grip.

**180.** For the best adjustment of fire when firing at night, it is advisable to use tracer ammunition.

**181.** Fire is conducted at night on targets that are located in the immediate vicinity of the rifleman, and which have given themselves away by sound, in long bursts by pointing the rifle along the barrel toward the sound.

**182.** Fire is conducted at targets that are behind a smokescreen or camouflage in long bursts with dispersion of the bullets across the front.

### **Firing in conditions of radioactive, chemical, and bacteriological contamination**

**183.** Fire is conducted in conditions of radioactive, chemical, and bacteriological contamination while wearing individual protective clothing. Firing while wearing the protective mask is conducted in long bursts. If the rear aperture and front sight post are not visible while firing in a gas mask, sight the rifle along the barrel.

When conducting fire in terrain contaminated with radioactive, chemical, or bacteriological substances, protect first of all those components of the rifle that you will have to touch during firing. The conduct of fire is the same as for firing in normal conditions.

After departure from the contaminated zone, conduct radioactive (chemical) decontamination or bacteriological disinfection of the rifle at the first opportunity.

### **Firing while the rifleman is moving**

**184.** Firing while the rifleman is moving (on the march, from an armored transporter, from a truck) is possible with short halts and without stopping.

Aimed fire is conducted from a short halt by the same rules as when firing from a stationary position. Prepare for firing, set the rear sight, and take aim during the time of movement and when the vehicle is braking. At the moment the vehicle stops, refine the sight picture and commence firing.

As a rule, because of the significant and constant movement of the rifle, firing from the march (when operating dismounted, on an armored transporter, truck, or amphibious vehicle) is conducted within the limits of battle-sight range. The rear sight is set at this range and should not be changed in the course of firing.

The aimpoint for height is selected at the lower edge of the target, and for lateral direction depending on the speed and direction of movement of the armored transporter (truck) and on the nature of the target (fleeting or moving). When firing over the front (rear) side or at an angle not exceeding 30° to the direction of movement of the armored transporter (truck) at fleeting targets in calm weather, do not displace the aimpoint from the target.



If firing off the right (left) side of the armored transporter (truck) with a speed of 10-15 kph, displace the aimpoint 4 mils to the side opposite the vehicle's movement. Remember the following rule when firing at personnel: shift the aimpoint to the right (left) when firing from the right (left) side by the number of human forms equal to the hundreds of meters to the target.

Calculate the shift of the aimpoint for a crosswind and lead for target movement the same as when firing from a stationary position.

When moving without halting across uneven ground on an armored transporter or truck, or on an amphibious crossing means in large waves, fire in long bursts, aiming the rifle along the barrel without using the sights.

Use tracer ammunition for the best adjustment of fire.

### **Ammunition resupply and expenditure in combat**

**185.** The rifleman carries his ammunition supply in magazines placed in the pouch.

Ammunition resupply for the rifle in combat is conducted by ammunition bearers selected by the unit commander.

Upon expending one-half of his personal ammunition supply, the rifleman reports this fact to the squad commander.

The rifleman should always maintain one magazine loaded with cartridges as an untouchable reserve, to be expended only with the commander's permission.



## Appendix A

### BALLISTIC AND DESIGN DATA OF THE 7.62mm MODERNIZED KALASHNIKOV RIFLE (AKM and AKMS) AND TYPE-1943 CARTRIDGE

Maximum range . . . . .	1000 meters
Battle-sight range at chest-high target (50-cm height) . . . . .	350 meters
Maximum rate of fire . . . . .	600 rounds/minute
Combat rate of fire:	
semi-automatic fire . . . . .	40 rounds/minute
burst firing. . . . .	100 rounds/minute
Muzzle velocity of projectile. . . . .	715 meters/sec [2346 feet/sec]
Range to which projectile remains dangerous . . . . .	1500 meters
Maximum range of projectile . . . . .	3000 meters
Weight of rifle minus bayonet-knife	
with unloaded light plastic magazine (AKM). . . . .	3.3 kilograms [7.3 pounds]
with unloaded light plastic magazine (AKMS) . . . . .	3.1 kilograms [6.8 pounds]
with loaded light plastic magazine (AKM) . . . . .	3.8 kilograms [8.4 pounds]
with loaded light plastic magazine (AKMS) . . . . .	3.6 kilograms [7.9 pounds]
Magazine capacity . . . . .	30 rounds
Weight of magazine	
light plastic . . . . .	.17 kilograms [6 ounces]
steel. . . . .	.33 kilograms [11.6 ounces]
Weight of bayonet-knife	
with scabbard . . . . .	.45 kilograms [15.9 ounces]
without scabbard . . . . .	.26 kilograms [9.2 ounces]
Caliber . . . . .	7.62mm [.30 caliber]
Length of rifle	
with bayonet-knife attached. . . . .	1020 mm [40.2 inches]
without bayonet-knife . . . . .	880 mm [34.6 inches]
with stock folded. . . . .	640 mm [25.2 inches]
Barrel length. . . . .	415 mm [16.3 inches]
Length of rifled portion of barrel . . . . .	369 mm [14.5 inches]
Number of grooves . . . . .	4
Thickness of front sight post. . . . .	2 mm
Length of sight plane . . . . .	378 mm [14.9 inches]
Projectile weight. . . . .	7.9 grams [122 grains]
Propellant charge weight. . . . .	1.6 grams [24.7 grains]



## Appendix B

### PENETRATION CHARACTERISTICS OF THE TYPE-1943 CARTRIDGE

Obstacle type	Projectile type	Range in meters	Percent of total penetration or depth of penetration in centimeters
7mm armor at 90°	Armor-piercing incendiary	300 200	50 percent 90 percent
Steel helmet	Ball with steel core Armor-piercing incendiary	900  above 1100	80 to 90 percent 80 to 90 percent
Protective vest	Ball with steel core Armor-piercing incendiary	600  1000	80 to 90 percent 80 to 90 percent
Parapet of densely packed snow	All types of projectile	500	70 to 80 cm
Earthen obstacle of poured, sandy soil	All types of projectile	500	25 to 30 cm
Dry, square beams, 20 x 20 cm, tied together in stacks	Ball with steel core and armor-piercing incendiary	500  150	25 cm 30 to 40 cm
Brickwork	Ball with steel core and armor-piercing incendiary	100	12 to 15 cm



## Appendix C

## QUANTITY OF AMMUNITION REQUIRED TO DEFEAT A SINGLE TARGET

Firing range in meters	Head shot	Head, chest	Head to waist	Running figure	Running figure (profile)	Machine gun	Anti- tank missile	Anti- tank gun
100	3/1	3/1	3/1	3/1	3/1	3/1	3/1	3/1
200	4/2	3/1	3/1	3/1	3/1	3/1	3/1	3/1
300	6/3	4/2	4/1	4/1	4/1	4/2	3/1	3/1
400	9/4	6/3	4/2	4/2	5/2	5/2	3/1	3/1
500	13/6	9/4	5/2	5/2	6/2	6/3	4/2	3/1
600		12/5	6/3	6/2	7/3	8/4	5/2	4/2
700		16/7	8/4	7/3	9/4	11/5	6/2	4/2
800			11/5	9/4	11/5	15/7	7/3	5/2

The enumerator is for firing in short bursts, the denominator is for semi-automatic fire.

- Notes: 1. When firing at moving targets, the quantity of cartridges is increased by 1.3 times.
2. When firing at night or at targets in water, the quantity of cartridges is increased by 1.5 times.
3. When firing from amphibious assault means, the quantity of cartridges is increased by 2 times.
4. When firing from the prone unsupported or kneeling position and on the march from short halts or standing, the quantity of cartridges is increased in accordance with the following ranges: 100 meters—1.3 and 1.8 times; 200 meters—1.6 and 2.3 times; at greater ranges—by 2 times.



## Appendix D

## BALLISTIC TABLE

Projectile weight 7.9 grams [122 grains]

Muzzle velocity 715 meters/second [2346 feet/second]

Muzzle energy 207 kilograms/meter [1497 foot-pounds]

Range	Sight elevation angle		Angle of fall		Trajectory height	Horizontal Range to Maximum Trajectory	Total time of projectile flight	Projectile velocity at target	Projectile energy at target	Range
meters	°/min	mils	°/min	mils	meters	meters	seconds	ft/sec	ft-lb	meters
<b>100</b>	0 07	1.9	0 04	1.1	.03	51	.15	2044	1135	<b>100</b>
<b>200</b>	0 11	3.1	0 09	2.5	.13	105	.32	1761	846	<b>200</b>
<b>300</b>	0 16	4.4	0 18	5	.34	162	.52	1505	622	<b>300</b>
<b>400</b>	0 22	6.1	0 31	8.6	.71	221	.76	1282	456	<b>400</b>
<b>500</b>	0 31	8.6	0 48	13	1.3	282	1.04	1194	340	<b>500</b>
<b>600</b>	0 42	12	1 09	19	2.3	344	1.35	997	268	<b>600</b>
<b>700</b>	0 54	15	1 35	26	3.7	406	1.69	931	231	<b>700</b>
<b>800</b>	1 08	19	2 06	35	5.5	468	2.05	872	210	<b>800</b>



## Appendix E

## MAGNITUDE OF MEAN TRAJECTORY OVER LINE OF SIGHT

Bullet weight 7.9 grams [122 grains]

Muzzle velocity 715 meters/second [2346 feet/second]

<div>Range in meters</div> <div>Rear sight setting</div>		50	100	150	200	250	300	350	400	450	500	550	550	<div>Range in meters</div> <div>Rear sight setting</div>
		centimeters												
1		0	0	-7	-20	-	-	-	-	-	-	-	-	1
2		5	10	9	0	-17	-45	-	-	-	-	-	-	2
3		13	25	31	30	20	0	-31	-77	-	-	-	-	3
4		22	44	60	69	68	57	35	0	-52	-123	-	-	4
5		34	68	96	116	127	129	119	95	55	0	-83	-187	5
<div>Range in meters</div> <div>Rear sight setting</div>		100	200	300	400	500	600	700	800	900	1000			<div>Range in meters</div> <div>Rear sight setting</div>
		meters												
6		0.99	1.8	2.8	2.1	1.4	0	-2.7	-6.4	-	-			6
7		1.3	2.5	3.3	3.6	3.3	2.1	0	-3.5	-8.4	-			7
8		1.8	3.4	4.6	5.4	5.5	4.7	3.0	0	-4.5	-10.5			8



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# Firearms Safety

**The 7.62mm Modernized Kalashnikov Rifle (AKM and AKMS) is a firearm and a dangerous weapon. It is potentially lethal.**

**WARNING:** If the AKM/AKMS, or any firearm, is carelessly or improperly handled, unintentional discharge could result and could cause injury, death, or damage to property.

Users of AKM/AKMS rifles are advised to carefully read the instruction manual if one came with the firearm, prior to loading and firing. Your safety and the safety of others, including members of your family, depends on your understanding and mature compliance with the applicable instruction manual and your constant use of safe firearms handling practices. If you are unfamiliar with firearms, seek further advice through safe handling courses offered by local gun clubs, National Rifle Association approved instructors, or similar qualified organizations.

Russian Military Translations and Enterprise Design and Publishing shall not be responsible for injury, death, or damage to property resulting from either intentional or unintentional discharge of an AKM or AKMS rifle.

## Six Basic Firearms Safety Rules

1. Never put a round in the chamber until you are ready to shoot.
2. Always point the gun in a safe direction.
3. Keep the selector on safe until you are ready to fire.
4. Unload the weapon completely immediately after use, and double check the chamber.
5. Always ensure a gun is not loaded before cleaning or disassembling it.
6. Practice handling the gun empty before attempting to load and fire it.



# Firearms Safety

**WARNING:** When you squeeze the trigger of any firearm, you must expect the firearm to fire, and you must take full responsibility for firing it. Your careful handling can avoid accidental discharge, and you can avoid accidental injury and death.

**WARNING:** This firearm may accidentally fire when a round is loaded into the chamber, if the firearm is dropped, or receives a blow to the muzzle or front of the gun. This can occur regardless of the hammer or safety positions. Extra care and strict use of safe handling procedures by the firearm user is mandatory and essential to minimize risk of accidents.

## Firearm Safe Handling Rules

- Always handle your firearm as if it were loaded, so that you never fire it accidentally when you think it is unloaded.
- Never point your firearm at anything you do not want to shoot, so that if it fires accidentally, you will prevent injury, death, or damage to property.
- Never take anyone's word that a firearm is unloaded. Check for yourself with your fingers off the trigger and the gun pointed in a safe direction, so that you never fire the firearm accidentally when you think it is unloaded.
- Always make sure your firearm is not loaded and the slide or bolt is latched open before laying it down, or handing it to another person, so that it cannot be fired accidentally or when it is unsafe to fire it.
- Always keep and carry your firearm empty, with the hammer forward except when you intend to shoot, so that your firearm cannot be fired when you do not mean to fire it.
- Always be aware of possible risk from dropping your firearm. Some parts of the mechanism could be damaged. You may not see the damage, but if it is severe, the firearm may discharge and cause injury, death, or damage to property. If your firearm has been dropped, have it examined by a competent gunsmith before using it again.
- Never leave a firearm cocked ready to fire. This condition is extremely dangerous, and the firearm could easily be accidentally discharged, causing injury, death, or damage to property.
- Never leave a loaded firearm unattended. Someone, especially a child, may fire it and cause injury, death, or damage to property.



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## Firearm Safe Handling Rules

- Store your firearms and ammunition securely locked and in separate locations out of reach and sight of children. Children are naturally curious and do not always recognize or believe the real danger of guns.
- Always instruct children and others in your home to respect firearms. If you teach your children to shoot, teach them or get them trained by a qualified instructor to treat and use the firearm properly. Always supervise them closely. Always stress safety so that your children will not fire the firearm when it is unsafe to do so.
- Always be sure your shooting backstop is adequate to stop and contain bullets before beginning target practice, so that you do not hit anything outside the range shooting area.
- Always put a knowledgeable and responsible adult in charge to maintain safety control when a group is firing on a range. Obey his or her commands to maintain discipline and reduce the possibility of accidents.
- Always carry your firearm empty with the bolt latched open or slide locked open while on a range until preparing to fire. Keep it pointing toward the backstop when loading, firing, and unloading, to eliminate the risk of injury, death, or damage to property from premature or accidental discharge.
- Always be sure the barrel, bore, chamber, and action are clean and clear of obstructions. Clean a wet or fouled firearm immediately so that it will function correctly and safely.
- Always use only clean, dry, original, high quality, commercially manufactured ammunition in good condition that is appropriate to the caliber of your firearm. Gun and ammunition manufacturers design their products within exacting engineering safety limits. Handloads and remanufactured ammunition are sometimes outside of those limits and can be so unsafe as to explode in the chamber and receiver to cause injury, death, or damage to property. The use of remanufactured or hand loaded ammunition is not recommended.
- Always check that ammunition is clean and undamaged. Do not force ammunition into the chamber. Forcing damaged ammunition into the chamber could damage your firearm and could result in injury, death, or damage to property.
- Never drink alcoholic beverages or take drugs before or during shooting, as your vision and judgment could be seriously impaired, making your gun handling unsafe.
- Always seek a doctor's advice if you are taking medication, to be sure that neither your condition nor your medication render you unfit to shoot and handle your firearm safely.



## Firearm Safe Handling Rules

- Always wear and encourage others to wear ear protection when shooting, especially on a range. Without ear protection, the noise from your firearm and other guns close to you could leave a “ringing” in the ears for some time after firing. Temporary and permanent hearing loss can result from unprotected exposure to noise from firearms.
- Always wear and encourage others to wear protective shooting glasses. Flying particles could damage your eyes and cause blindness. Protective glasses designed for shooting should prevent such injury. Ensure protective glasses are designed for protection while shooting firearms.
- Always keep the safety selector switch set to “safe” when the firearm is loaded and cocked, until you are aiming at your target and intend to fire. This will reduce the risk of accidental firing.
- If your firearm fails to fire when you pull the trigger, hold it, keeping it pointed toward the target, and wait 30 seconds. If a hangfire (slow ignition) has occurred, the round should fire within 30 seconds. If the round does not fire within 30 seconds, remove the magazine, eject the round and examine the primer. If the firing pin indent on the primer is light, misaligned, or non-existent, have a competent gunsmith examine your firearm. If the firing pin indent on the primer appears normal in comparison with previously fired rounds, assume faulty ammunition. Segregate misfired rounds from other live ammunition and empty cases. Reload and continue firing. Dispose of misfired rounds in accordance with the ammunition manufacturer’s instructions.
- Never use your firearm if it fails to operate properly. Never force a jammed round, as a round may explode causing serious injury, possible death, or severe damage to your firearm.
- Always keep clear and keep others clear of the cartridge ejection port. Spent cartridges are ejected with enough force to cause injury, and the ejection port must be clear to ensure safe ejection of spent cartridges or live rounds. Never place your fingers in the ejection area. You could be burned by hot metal or injured by the bolt or slide moving forward.
- Never put your finger inside the trigger guard or squeeze the trigger until you are aiming at a target and are ready to shoot. This will prevent you from firing the firearm when it is pointing in an unsafe direction.
- Always be absolutely sure of your target, and the area around and behind it, before you squeeze the trigger. A bullet could travel miles beyond your target. If in doubt, don’t shoot.
- Never attempt to fire with water in the barrel. Water can accumulate if your firearm is exposed to heavy rain or fog. Open the bolt or slide and allow the water to drain. Clean and dry the weapon before firing, if possible.



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## Firearm Safe Handling Rules

- Never shoot at a hard surface such as a rock, or a liquid surface such as water. A bullet may ricochet and travel in any direction to strike you, or an object you cannot see, causing injury, death, or damage to property.
- Never fire your firearm near an animal unless the animal is trained to accept the noise. An animal's startled reaction could injure it or cause an accident.
- Never indulge in "horseplay" while holding your firearm, or with anyone else holding a firearm, as it may be accidentally discharged.
- Never walk, climb, or follow a companion with your firearm cocked ready to fire. To eliminate the risk of accidental discharge, hold your firearm so that you can always control the direction of the muzzle, and keep the safety selector lever set to "safe."
- Always make sure your firearm is not loaded before cleaning or storing it, so that it cannot be fired when it is unsafe to do so.
- When disassembling or assembling a firearm, wear safety glasses in case you lose control of a spring or spring-loaded component that could injure your eyes.
- Never abuse your firearm by using it for any purpose other than shooting.
- Never dry fire the firearm when the receiver is open, and do not alter parts, as the level of safety could be reduced.

Various federal, state, and local laws govern the transfer and transportation of firearms. If you do not know the applicable laws, consult a firearms dealer or a law enforcement official in your area prior to transferring or transporting any firearm.

If there is anything you do not understand regarding use and operation of the AKM/AKMS rifle or any firearm, seek advice from someone qualified in the safe handling of firearms.



This instruction manual is intended only as a historical reference document. It was originally published in Russian by the Ministry of Defense of the Union of Soviet Socialist Republics Military Press in 1967 as an instruction manual for their military personnel on the use and maintenance of the 7.62mm Modernized Kalashnikov Rifle (AKM and AKMS). Although careful study of this translation could be potentially beneficial to anyone who owns or uses these firearms, this translation is not intended to be an owner's or operator's safety and instruction manual for the AKM or AKMS rifle.























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